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RESIDENTIAL GROUP COMPOSITIONS AMONG THE ALYAWARRA

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Contents

Abstract: *This is the third of three papers I have written recently that challenge and seek to supplant the presumption of closure, rigidity and simplicity in anthropological analyses of Australian Aboriginal social organization. The first dealt with generational closure in canonical Kariera and Aranda kinship models; the second dealt with societal closure, endogamy and the small-world problem; this one examines closure, rigidity and simplicity in residential group compositions. I argue that these three problematic applications of the concept of closure converted European folk beliefs into a scientific theory based more on assumptions and conjectures than on observations of Aboriginal behavior. This paper and the two that preceded it constitute a systematic argument that emphasizes the importance of openness, flexibility and complexity in analyzing Australian Aboriginal social organization.*

The current paper is a commentary on theoretical issues associated with diversity in residential group compositions within and among Australian Aboriginal societies. I approach the matter by focusing primarily on variability in ethnographic patterns and historical processes for which I collected computer-analyzable behavioral and cognitive data with the Alyawarra speaking people of Central Australia in 1971-72. Throughout the paper, I emphasize complexity, openness, flexibility and freedom among the Alyawarra, while rejecting simplicity, closure, rigidity and Strehlow's (1947) "all-oppressive night-shadow of tradition".

Among the Alyawarra, "residential group" means 2 or more people living together in any of three kinds of residences and three kinds of communities. "Group composition" refers to the diverse relationships among people with whom one lives. Relevant biological and behavioral factors include sex, age, marital status, asymmetrical male/female generation intervals with a mean wife<husband age difference of 14+ years, polygyny with 1.33 wives per married man, 49% of marriages with known biological kin, 74% of marriages with matrilateral cross-cousins and 0% with bilateral cross-cousins, and 23% of marriages based on societal exogamy. Relevant cognitive factors include concurrent use of two different universal kinship terminologies (viz., egocentric and sociocentric), plus concurrent membership in descent-based patrimoieties, matrimoieties, Dreamings and Countries, and in marriage-based generation moieties that intersect with descent moieties to yield sections and subsections. Synchronic analyses of these data reveal a remarkable range of clearly patterned internally consistent diversity, and diachronic analyses of them in the context of climatic instability, long term migration, intersocietal marriages and impacts of colonialism greatly increase the scope of that diversity.

It is a truism that we cannot account for societal complexity when our preconceived notions prevent us from perceiving it. My objective here is to demonstrate that a great deal of complexity in Australian Aboriginal social organization waits to be discovered if only we will look for it. Raising one's consciousness is not developing a grand theory, but it may be a useful first step.

Acknowledgements

I am grateful to the many Alyawarra men, women and children whose contributions of demographic, genealogical, kinship and other statistical data made this paper possible. Their intuitive understanding of what I was attempting to do, how I was attempting to do it and how they could contribute to it made the project both successful and satisfying, certainly to me and I believe to them as well. I appreciate the assistance I have received over the years from readers named and unnamed, especially John Atkins during the formative years, Doug White during the years when I was developing my ideas on closure, and Dwight Read for his patient reading of my work on kinship in this and other papers. Since I was absent from Australia in the 1980s and 1990s, I missed out on an intense period of data collection and analysis by anthropologists concerning Aboriginal land tenure, most of the results of which appear only in unpublished court reports. I am most grateful to Paul Memmott for sharing his knowledge of that inaccessible literature with me. I sincerely thank him and James O'Connell for their constructive suggestions for improving the paper and for the many references to which they directed me. Thanks to MACT for publishing my work. As an unaffiliated scholar, I remain deeply indebted to online and interlibrary loan services at Plymouth State University, Dartmouth College, University of California at Irvine and Abbie Greenleaf Library, Franconia, New Hampshire.

RESIDENTIAL GROUP COMPOSITIONS AMONG THE ALYAWARRA

1. *Understanding diversity in Alyawarra coresidency*

This is the third of three papers I have written recently that challenge the presumption of closure, rigidity and simplicity in anthropological analyses of Australian Aboriginal social organization. The first (Denham 2012) dealt with the problem of generational closure in canonical Kariera and Aranda kinship models; the second (Denham 2013a) dealt with the problems of societal closure, endogamy and inbreeding avoidance; this one examines the problem of closure, rigidity and simplicity in residential group compositions. Several Figures in this paper appeared earlier in Denham (2012 and 2013a), but I use them again in this paper to tell a different story.

The three papers on closure evaluate a long standing, comprehensive theory of Australian Aboriginal social organization based on what I consider to be three fictions; viz., bilateral sibling exchange marriage, societal endogamy, and the horde or something like it as the focus of residential group compositions. Collectively these fictions converted European folk beliefs into the kind of scientific theory that Radcliffe-Brown ostensibly rejected with his long standing animosity toward fictive or conjectural history.

The current paper is a commentary on ethnographic, historical and theoretical issues associated with diversity in Australian Aboriginal residential group compositions. Diversity in residential group composition occurs both within and among societies. I approach the matter by focusing primarily on a wide range of variation in data that I collected with the Alyawarra speaking people of Central Australia in 1971-72. Throughout the paper, I emphasize openness, flexibility and complexity[1] among Alyawarra residential groups, while

[1] Defining "complex" is not easy. In Latin, it means "to weave or braid together" (from Latin *complexus*, from *com-* "together" and *plectere* "to weave, braid"; Wiktionary.org: http://en.wiktionary.org/wiki/complex#Etymology). In modern Standard American English, it means "made up of interconnected parts; complicated or involved arrangements of parts; or intricate associations of related things", with simple defined as the opposite of complex in each case (The Free Dictionary http://www.thefreedictionary.com/complex). In sociological discourse, Tainter (1988:22-38), for example, contrasts "simple societies" with "complex societies" on ad hoc empirical dimensions some of which may be ethnocentric, including population size, number of social roles, extent of inequality and heterogeneity, energy consumption, and static vs. dynamic histories. Then he asks whether complex societies form a discrete "stage" in cultural evolution or whether there is a continuum from simple to complex, with simple again being the opposite of complex. From a mathematical perspective, Mitchell (2009:94-114), for example, reviews attempts to develop precise measures of complexity based on abstract notions such as size, entropy, information content, regularity, randomness, logical and thermodynamic depth, statistical complexity and degree of hierarchy. She then applies those measures to domains such as brain structures, immune systems, genetics, evolution and computation. The dimensions that Mitchell uses are not ethnocentric, but again complex and simple are treated as opposites. These and other families of definitions are

de-emphasizing closure, rigidity and simplicity. Since much has happened in Aboriginal Australia since 1972, I have written the body of this paper in the past tense with occasional lapses into the ethnographic present tense.

Without reactivating the moribund controversy that engulfed Radcliffe-Brown's "horde" in the 20th century, I contribute a good bit of potentially relevant quantitative data to that historically important debate whose vehemence and endurance may have been due in part to a noticeable lack of comparable data in the 19th and much of the 20th century. Although I generally agree with Hiatt's (1962, 1965, 1966) summary and critique of Radcliffe-Brown's (1913, 1918, 1930) austere interpretation of the horde, I suggest that my argument may be one that both Hiatt and Stanner (1965b) could accept, and am especially hopeful that the Alyawarra themselves will vouch for its value someday.

"Residential group" means 2 or more people living together. At an absolute minimum, "living together" has two levels of meaning among the Alyawarra. One level pertains to the kind of residence one occupies, the other to the kind of community in which one resides. For labeling the basic distinctions here, I introduce a minimal Alyawarra vocabulary[2].

Abmura (an individual sleeping depression) seems to be the basic concept for residences, referring to one depression in the sand, near a warming fire, protected by a windbreak. Based on that term, a **residence** (*mura)* minimally included one or more *urlya* (shade), *waga* (shelter) and *dagwa* (windbreak); several *abmura* (sleeping depressions) separated by *uryungwada* (warming fires); and an *umbarla* (roasting pit) (O'Connell 1987).

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useful for some purposes, each embodies questionable assumptions, and none has achieved anything approaching universal acceptance. Since this paper is not a suitable place for defining "complex", I tentatively and opportunistically accept the Standard American English definitions listed above, reject some of the *ad hoc* ethnocentric dimensions that Tainter advocates, and use some of the abstract dimensions that Mitchell introduces.

[2] The spelling of Australian Aboriginal words is a vexed issue. In this paper I simultaneously follow four rather different conventions. a) When I deal with section and subsection terms in a cross-culturally comparative manner, I follow the valuable standardizations adopted and recommended by Koch (1997). b) When I use terms published in older works by people such as Spencer and Gillen (1899), Strehlow (1947) and Meggitt (1962), I respect and retain their published spellings that reflect dialectal variations of speakers as well as first language interference in hearing, speaking, reading and writing among recorders and analysts. c) When I use terms that I recorded during my own fieldwork, I use my original spellings that, as accurately as possible, reflect my own understanding of both the pronunciations and the meanings of the terms in question. d) Appendix 4 contains a brief summary of ordinary English terms, Aboriginal terms as I understood them, and Alyawarra terms as spelled and defined by Green (1992).

Depending upon the sex, age and marital status of their occupants, residences are classified as *ngundya* (for unmarried men), *alugera* (for unmarried women) and *anoardegan* (for husbands, wives and young children).

Terms used for traditional **communities** refer to groups of residences on a continuum of size and complexity from small to medium to large. *Inderluga* (a tiny, highly mobile community) seems to refer to a temporary single anoardegan, perhaps with one affiliated alugera or ngundya, that would occur most likely during extreme droughts. *Mura* (medium sized dispersed semi-sedentary community labeled with the same term that I used above for residence) seems to refer, in this second sense, to a cluster of residences including one ngundya, one alugera and several (5 or 6) anoardegans[3]. *Murelgwa* refers to a large community consisting of an aggregation of several mura in the second sense. The aggregation includes one (sometimes two) ngundya, plus 4, 5, 6 or more alugeras each with several affiliated anoardegans and a total population of 100 to 300 residents.

Here I summarize some terminological relationships as I heard and understood them: viz., a) the small-to-large nesting of *mura* in *ab-mura* = sleeping depression, *mura* = residence or medium sized camp, *mur-elgwa* = large camp; b) the parallelism of *-elgwa* in *mur-elgwa* = community-large, and *ardwa-elgwa* = male-mature, and c) the parallelism of *ano-* in *ano-ardegan* = marital-residence and *ano-wadya* = self-reciprocal kinship term for marital pairs or spouses.

To reduce the ambiguity and confusion associated with the two meanings of mura: a) I always use the English language term "residence" whenever I want to say residence; and, b) following Austin-Broos (2003), I always use the Alyawarra term "mura" whenever I want to say medium-sized dispersed community with one ngundya, one alugera and several anoardegans.

"Group composition" means "who lives with you?" What are the categories and relations among people with whom you live? Possible answers include an enormous range of folk concepts and technical terms many of which I explore here. A short list of relevant terms, in no special order, includes: sex, age, marital status, monogamy, polygyny, patrimoiety, matrimoiety, generation moiety, generation intervals, generation levels, sections, subsections, genealogies, kin types, skin terms, kin terms, nuclear family, extended family, household, camp, cluster, sub-cluster, Country, clan, band, horde, local group, territory, estate, range, domain, regime, language group, tribe and nation, plus residence and

[3] Austin-Broos (2003:121) uses the same word for the same intermediate-sized community (*pmere* = *mura*) but spells it differently: "Arrente … live in small local groups or camps (*pmere*)".

community as defined above. Almost all of these words are encumbered to some extent by the problematic folk legacy that plagued the concept of the horde from the 19th century onwards. I review that legacy at the end of the paper.

Seeking "elegant simplicity" in framing a scientific explanation is commendable, but it does not justify bypassing the empirical complexity introduced above, a complexity that underlies the "blooming, buzzing confusion" (James 1890/1981:462) that may characterize a baby's impressions of the universe and a scientist's data about it. A recent but already classic example of this problem is described (Mattick 2008, quoted in Mitchell 2009:280) as follows: "The irony is that what was dismissed as junk [DNA] because it wasn't understood [may] turn out to hold the secret of human complexity". Likewise, fields from genetics and immunology to evolution and cosmology use new concepts and new technologies to reveal heretofore unimagined complexity in aspects of the universe previously thought to be reasonably well understood in much simpler terms. By analogy, it is safe to suspect that 19th and 20th century research with Australian Aboriginal societies was plagued by similar failures of understanding.

I follow Memmott's (2007) excellent recent volume on Australian Aboriginal architecture, settlement patterns and residential group compositions that addresses many relevant issues that were disregarded in the mid-20th century theoretical battles over hordes. Discussions of the Alyawarra by Memmott (2007), as well as by O'Connell (1977b, 1987), Binford (1984, 1986) and Binford and O'Connell (1984), all rest in part on my earlier data, and I am in basic agreement with their interpretations of those data.

You are reading Part 1 of this paper. Part 2 briefly outlines the experiment in field methods and data analysis that I conducted with the Alyawarra of Central Australia. Part 3 introduces topographic, climatic, historical and kinship contexts within which I situate the paper. Parts 4 through 7 ask "who lives with you?" and introduce several fundamentally different ways to answer that question. Parts 4 and 5 focus on the variability of residences and communities in which Alyawarra residential group compositions occur, while Parts 6 and 7 analyze in considerable detail the compositions of synchronic and diachronic residential groups. Part 8 summarizes the variability that characterizes Alyawarra residential group compositions, suggests a general approach toward understanding that variability, and concludes that value-laden data collected on the basis of 19th century assumptions necessarily precluded the development of open, flexible and complex models.

Throughout the paper, I use "part" to refer to numbered portions of the paper and "section" to refer to 4-section and 8-subsection divisions within Australian Aboriginal kinship systems.

My paper does not deal directly with pre-contact conditions among the Alyawarra. However, for reasons to be introduced in detail below, it does not deal with heavily acculturated or "detribalized" people either.[4] Rather, it focuses on a large, traditional segment of one of the last Aboriginal societies in Central Australia to be subjected – in large part after I completed my fieldwork - to direct and persistent contacts with the Northern Territory Administration, government settlements, reservations, church missions, alcohol, the *Aboriginal Land Rights (Northern Territory) Act 1976* and the *Native Title Act 1993.*

I am confident that my argument – and especially my data – can contribute to continuing discussions of Aboriginal housing, native title, land rights and related topics. Although I do not deal explicitly with these matters, I certainly agree that "an understanding of the cultural foundations of Aboriginal life [is] a prerequisite of the formation of policy" and hope that this paper contributes to the increasing body of "knowledge and understanding which, in [their] haste and arrogance, [colonial administrators] sought to do without" (Coombs 1979:ix).

2. Alyawarra datasets

I have described my research design and datasets in great detail elsewhere (Denham 1975, Denham, McDaniel and Atkins 1979, Denham and White 2005, Denham 2014a, 2014b). Here I briefly summarize those descriptions.

I designed my fieldwork with the Alyawarra of Central Australia in 1971-72 as an experiment in field methods and data analysis. My emphasis was on observational data collection, focusing on what people do, not on what they say they do, or should do. Virtually all of my data was alphanumerically coded for computerized data analysis. My collection, which was designed to facilitate serendipity in many areas of anthropological research, includes but is not limited to the following major datasets: vital statistics, genealogies, kinship term applications, censuses, maps, portraits and slides, weather records and observational behavior records.

Four databases have emerged from my Alyawarra project, including the following:

[4] This point is highly contentious. For example, O'Connell (1977b) and Binford (1984) who also worked with the Alyawarra in the 1970s agree with my position, but I am certain that Birdsell (1970) would reject it out of hand.

- Alyawarra 1971 AU01 (Denham 2014a, Denham 2014b). This database is confined to my 1971 fieldwork with the Alyawarra. I focused on the southern Alyawarra at MacDonald Downs and Derry Downs Stations, dealt to a lesser extent with those at Warrabri/Alicurung[5] Settlement and Lake Nash Station, but omitted the northern Alyawarra in the Davenport-Murchison-Barkly-Avon Downs region. Research population size: 377 people.
- Alyawarra 1817-1979 AU10 (Denham 2014b). This database includes my Alyawarra 1971 vital statistics, genealogies, censuses and kinship term data. I augmented it with NTA censuses for the Alyawarra spanning 150 years and included the northern Alyawarra in the Davenport-Murchison-Barkly-Avon Downs region. Research population size: 1361 people.
- Group Compositions in Band Societies (GCBS) Database (Denham 2014b). This database includes my Alyawarra 1971 vital statistics, genealogies and censuses. I augmented it with historical datasets from 40 hunter-gatherer societies from 1776 to 1976 containing comparable vital statistics, genealogies and censuses; research population size: 8,937 people.
- Alyawarra 1971 kinship applications data (Denham 2014b). During my fieldwork, I generated this data file in which 104 informants applied one of 26 kinship reference terms to each of 227 members of the research population (104 x 227 = 23,600 kinship term applications). The kinship reference terms used in this task appear in Appendix 3. I use these data below to analyze kin relations among residents of two Alyawarra camps.

Hard copies of my Alyawarra field records are available in the Alyawarra Ethnographic Archive (Denham 2014a) at Mura Library, Australian Institute of Aboriginal and Torres Strait Islander Studies, Canberra, ACT, Australia.

To access electronic copies of the databases and files listed here, go to Appendix 1 Online Supplementary Materials, and left-click the links as needed.

3. Context

Residential group compositions among the Alyawarra occurred within a complexly structured space. Before analyzing group compositions in detail, I describe the spaces within which they occurred. In this part I examine maps, climate, history and kinship. Although my

[5] Warrabri Settlement (http://www.findandconnect.gov.au/nt/biogs/YE00066b.htm), now known officially as Alicurung and in the lilting Alyawarra dialect as *a-LEK-arunga*, was established in 1954. Since I conducted my research when the settlement was known as Warrabri, I use that name in this paper.

descriptions and analyses generally address what I perceive as usual, ordinary and typical, I also emphasize exceptions to most of my generalizations.

Maps

I begin with two distinctly different kinds of maps of the southeastern quarter of the Northern Territory. The map of White Australian places shows the locations of towns, pastoral properties, mines, government settlements and other places established under European colonialism since the mid-19th century. The maps of Aboriginal Australian places show the approximate locations of relevant language group territories, and the approximate locations of ancestral Dreaming and Country sites that were of central importance in the lives of the Alyawarra.

White Australian places. Figure 3.1 depicts the southeastern quarter of Australia's Northern Territory. The region of interest occupies a square roughly 425 km (265 miles) on a side generally bounded as follows:

- North: Barkly Highway (visible on map, eastward from Tennant Creek)
- East: Border between Northern Territory and Queensland (faint vertical line in the east)
- South: Plenty River Highway (invisible; eastward via Hart's Range, Plenty River, Jervois)
- West: Stuart Highway (visible on map, northward from Alice Springs to Tennant Creek)

All places and events discussed in this paper occurred within the area covered by Figure 3.1. A distance scale appears in the lower left corner of each map. Yellow icons that are shaded gray are crowded together too closely to show their names. You can enlarge the document as needed to enhance the legibility of these and other graphics.

Red icons represent White Australian cultural features including towns, mines, a police station, a government settlement and a Christian mission. Yellow icons represent 37 pastoral properties or cattle stations most of which were established during or after the 1920s. The blue icon represents Gurlanda Camp, located about 160 miles (250 km) northeast of Alice Springs, where I lived and conducted most of my research in 1971-72.

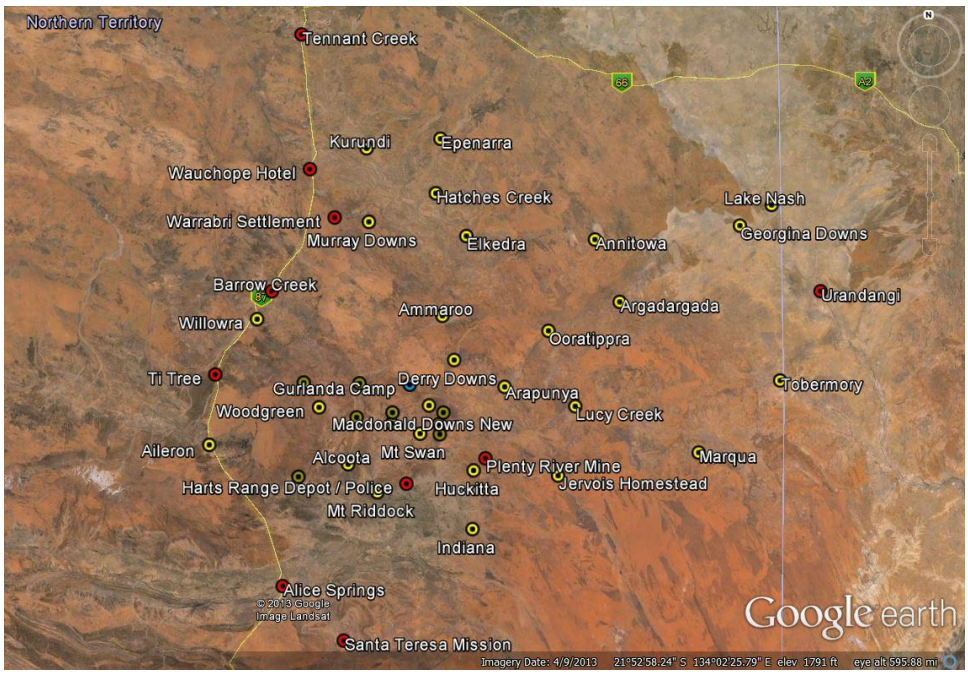


Figure 3.1. White Australian cultural features.
Stuart Highway (west), Barkly Highway (north), Queensland border (white line east), Plenty River Highway (south – not visible). Red icons represent towns, mines, a mission, a settlement and a police post; yellow icons represent pastoral properties generally known as cattle stations, and the blue icon represents Gurlanda Camp (left of center).

The places marked here include many that were of major importance to the Alyawarra in the 1970s. Yallop (1969) lived and worked in the late 1960s with the Alyawarra outside of their traditional territory at Lake Nash cattle station near the Queensland border, 330 km to the northeast of MacDonald Downs. Bern (1969) conducted an Aboriginal population survey on cattle stations in this region in 1969. I lived and worked with the Alyawarra within traditional southern Alyawarra territory at MacDonald Downs and Derry Downs cattle stations near the center of the region in 1971-72, and O'Connell (1987) worked in the same camps in 1973-75. Moyle (1986) lived and worked with the Alyawarra at nearby Ammaroo station in the late 1970s. Bell (1993) lived and worked with them in the late 1970s at Warrabri Settlement on the western side of traditional Alyawarra territory and close to the Stuart Highway, 170 km to the northwest of MacDonald Downs. Also a small population of Alyawarra lived with a larger population of Aranda at Utopia station about 40 miles west of MacDonald Downs. I greatly appreciate the reports by Bell, Bern, Moyle, O'Connell and Yallop and rely on them at several points in this paper. Because the Alyawarra were highly mobile in the 1970s, I omit population sizes here but discuss them in detail below.

Other White Australian places of special importance to the Alyawarra in the early 1970s included Alice Springs Hospital to which people were transported occasionally by the Chalmers family and the Royal Flying Doctor Service for medical care, and Santa Teresa Mission where increase and initiation ceremonies were held sometimes.

Aboriginal Australian places. Figure 3.2 shows the approximate distribution of Aboriginal *language group territories* within and adjacent to the region depicted in Figure 3.1. The Alyawarra language or dialect is a member of a cluster of six Arandic languages that includes Alyawarr, Andegerebinha, Anmatjirre, Western Arrernte, Eastern Arrernte and Kaytetye, all of which are located adjacent to the Alyawarra inside the freeform boundary in Figure 3.2. Given the extent to which these six named groups speak related languages, use similar skin terms and intermarry, it appears that the Arandic language cluster traditionally constituted a "nation" in the cultural sense of that term (Sutton 1990, Blackburn 2002).

Traditional Alyawarra territory lies near the center of the Figure, with its permeable boundary indicated imprecisely by the black circle. Maps that delineate language group boundaries with greater precision are available on the Internet (AIATSIS 2013, Tindale 1974, etc.), but in my opinion more precision is questionable since Aboriginal notions of boundaries differ from those of White Australians (Sutton 1990). Blue icons within the black circle indicate the locations of the camps where I conducted my research. Figure 5.1 shows the camp locations in greater detail.

Figure 3.3 shows the deliberately approximate distribution of 76 *ancestral Dreamings* and *Countries* that Alyawarra men at Macdonald Downs, Derry Downs and Lake Nash Stations identified and mapped for me. Here I use an important distinction made regularly in Alyawarra-English between "Dreamings" and "Countries": 49 of the 76 places mapped here *did not* have known affiliated members, living or dead, and are called "Dreamings"; the remaining 27 places *did* have known affiliated members, living or dead, and are called "Countries".

Countries exist in two senses, sociological and topographic. Each sociological Country was a patrilineal descent group, approximately half of them existing as multigenerational strands within each patrimoiety. Each topographic Country was the land with which a sociological Country or Dreaming was affiliated. Countries in both of these senses have been the prime focus of controversy with regard to residential group compositions since the conflation of topographic Countries (Dreaming sites) with sociological Countries (patrilineal descent groups) has obscured and distorted relations between people and resources. I return to the vexed questions of resource allocation and kinship below.

Figure 3.2. White triangles show approximate locations of language group territories.
Blue icons represent camps occupied by the Alyawarra research population 1971-72.

Figure 3.3. Towns are red; Dreamings and Countries are green.
Numeric codes for Dreamings, alphanumeric codes for Countries.

Countries belonging to a single patrimoiety are divided "horizontally" into alternating generations that yield the distinctive section and subsection systems of much of Australia. Within this structure, members of same section, same generation level and same Country are biological siblings, while those who are members of different Countries are classificatory siblings.

I used a unique numeric code (1 through 85, with omissions) to identify each place, these codes being assigned in the order in which I learned of the places. For each of the Countries with known affiliated members, I have appended a two-letter alphabetic code to the numeric code. The alphabetic code identifies the patrimoiety or side with which each Country is affiliated; i.e., KB=Kamara-Burla, PN=Pityara-Ngwariya, as outlined in my overview of Alyawarra kinship below. The fact that 49 of the 76 places did not have known affiliated members does not mean that those Dreamings had lost their people; rather, it reflects my having worked with an incomplete sample of the population.

The Dreamings and Countries arrayed in this Figure do not reveal any imposed esoteric human distributional patterns such as circles, triangles, squares or arcs, or any peculiar clustering of KB or PN patrimoieties (Blundell and Layton 1978). Rather they seem to show that Countries associated with each patrimoiety were scattered more-or-less randomly across the desert landscape. Since Countries seemed not to be tied explicitly to language groups, Figure 3.3 alone says nothing about language group memberships despite the fact that various language groups were associated with this region.

Climate

Residential group compositions among Aboriginal people in Central Australia reflect complex climatic irregularities that have begun, only within recent years, to break free of traditional European concepts of 12-month solar cycles. My discussion of relations between climate and settlement pattern goes somewhat beyond Stanner's (1965b) traditional focus on fixed 12-month cycles that he called regimes, to focus on the historical complexity associated with El Niño, La Niña and other more complex irregular climate rhythms.

Extreme mobility among the Alyawarra in 1971 was not something new under the sun, but was an updated version of what they did traditionally. On a local, day-to-day scale, they managed and harvested food for immediate consumption. On a global, long term scale, they took care of their food supply by means of initiation and increase activities, and by conserving water, predicting and controlling the weather to the best of their ability, and engaging in coordinated, systematic, controlled burning of vegetation to enhance its long

term productivity (see references to Central Australia quoted by Gammage 2011 *passim*). Here in this broad narrative overview of tendencies, based on a mixture of field observations, censuses, surveys, discussions, readings, inferences and historical reconstructions, beware that I do not always cite my sources.

Traditionally water was the key to life, and maps embodied conceptually in networks of Dreaming tracks and graphically in designs applied to humans, shields, sand paintings and various other media served as reliable guides to water as well as to food located in habitat corridors and maintained by the use of anthropogenic fire adjacent to Dreaming tracks.

Climatic context. Residential group compositions among the Alyawarra occurred within a temporal context of climatic irregularity. Since the Alyawarra were nomadic, the locations in which they constructed their residences and camps were changeable, and the configurations of the structures and the compositions of the groups who occupied them were highly variable. Changes in locations, configurations and group compositions depended on at least two different sets of factors. Global and regional changes generally occurred in response to climatic factors related to the overall availability and distribution of water and food, with droughts and floods being the most conspicuous members of this category. Local adjustments to these global and regional events occurred in response to localized thunderstorms and flash floods, exhaustion of resources at specific locations, marriages, illnesses, deaths, events associated with the Dreamings, migration, personal preferences and so on. To understand the kaleidoscopic changes in residential group compositions among the Alyawarra, we must be aware that all of these factors operated simultaneously and more or less continuously. Parts of the following description are in a "timeless" present tense.

Globally, day length and temperature were the only elements that showed seasonally predictable changes in timing and distribution, but high and low temperature values were hard to predict.

Regionally, Indian Ocean monsoons and Pacific Ocean cyclones are summer events, but El Niño, La Niña and other irregular climate rhythms reduce their predictability. Although El Niño and La Niña events were recognized long ago, the major El Niño event of 1982–83 led to an upsurge of interest from the scientific community. It is now understood that El Niño events often are associated with drier than normal conditions across eastern and northern Australia, while La Niña events are associated with wetter than normal conditions across eastern and northern Australia (AustBoM n.d.). In Central Australia, El Niño often brings droughts, while La Niña often brings floods as indicated in Figure 3.4.

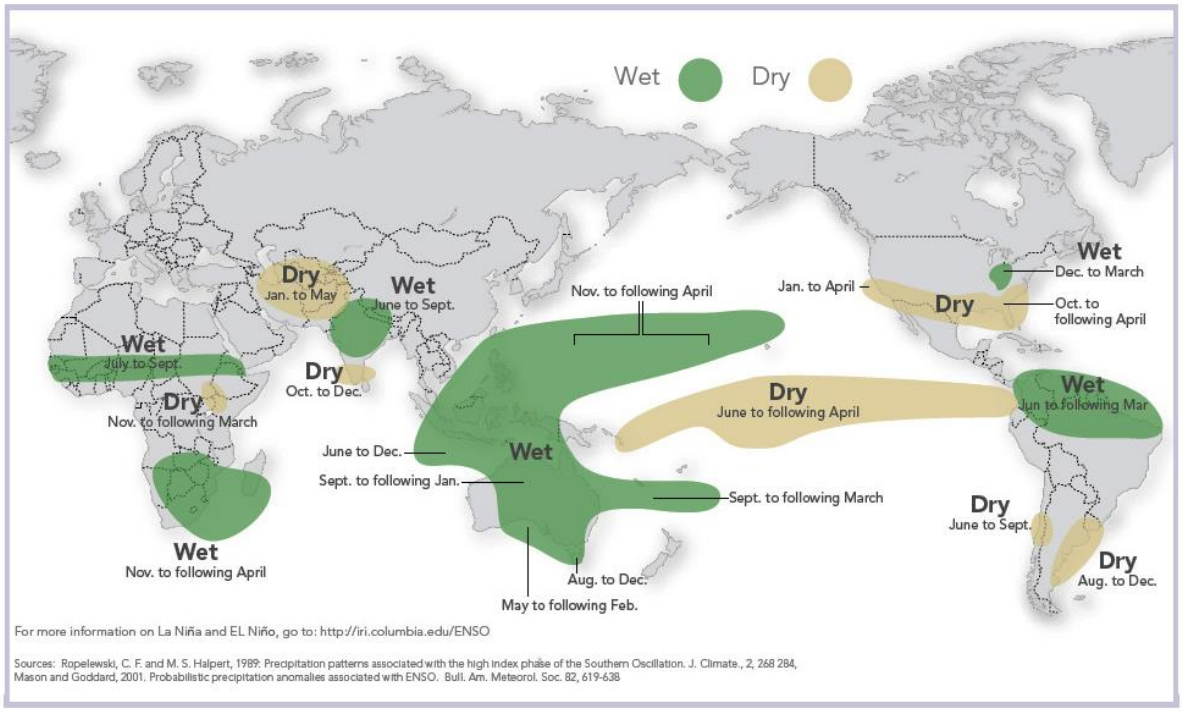


Figure 3.4. La Niña and Rainfall. La Niña conditions in the tropical Pacific are known to shift rainfall patterns in many different parts of the world. Although varying somewhat from one La Niña to the next, the strongest shifts are fairly consistent in the regions and seasons shown on this map (International Research Institute for Climate and Society, 2011).

An El Niño event might last for a year or longer, a La Niña event might last for 2-3 years, and a full El Niño – La Niña cycle might span 2 to 13 or more years (for details of the period 1950-2013, see Appendix 2). Furthermore, the unpredictability of the tracks, intensities, durations and recurrence intervals of these events is intensified by complicating factors including the El Niño - Southern Oscillation (ENSO) atmospheric pressure cycle, the Indian Ocean Diode (IOD) sea surface temperature cycle, and the Southern Annular Mode (SAM) mid-latitude westerly wind variability cycle. For example, the successive La Niña events of 2010-11 and 2011-12, two of the most significant events in Australia's recorded meteorological history, combined with extreme monsoons and cyclones, plus other complicating factors, to bring 130-year record breaking rainfalls and floods over much of the continent (AustBoM 2012; Fasullo, et al, 2013). There is no indication that these events were due to anthropogenic global warming (T. Peterson et al., 2013).

Locally, the timing, amount and spatial distribution of thunderstorms and flash floods were highly unpredictable. Events such as those depicted in Figure 3.5 depended on local topography as well as on meteorological conditions.

Figure 3.5. La Niña 1971.
My photos of mist at Gurlanda Camp, a flood beginning at Bundey River, full flood at Todd River.

In this climatic context the Alyawarra cannot be described meaningfully as experiencing a solar "seasonal cycle" with its implications of predictable durations and recurrence intervals of 12 months (Strehlow 1965:121). Such notions, based on assumptions concerning long term statistical averages (Stanner 1965b:6-7) rather than on observable variability, are ethnocentric impositions on an alien culture. Stanner focuses on 12-month seasonality and rainfall averages while acknowledging that climatic variability occurs; I focus on climatic variability, and place the recurring 12-month seasonality far in the background. It is a matter of emphasis.

I suggest that it is more meaningful to describe the climate, as the Alyawarra experienced it, in terms of "quasi-seasonal cycles with four phases of variable durations". From an Alyawarra perspective, I suggest that the phases occurring in a complete cycle might be called rich time, good time, drought and flood (see Stanner 1965b:3-7, *passim*, concerning regimes). In this description, I arbitrarily set the beginning of the cycle at a rich time and end it at the beginning of the next rich time. Each phase has a distinctive impact on the *process of dispersal* by which individuals move from one place to another at various points in the cycle, and on the *pattern of dispersion* or spatial arrangement of individuals, residences and camps in Alyawarra territory at one point in time (Armstrong 1977).

Phase 1. Rich time. A short, *unsustainable* phase of optimal conditions follows a drought-breaking flood that occurs in Phase 4 below. As flood water sinks into the sand, drains into lower lying areas or evaporates back into the clouds, the desert traps water in rock holes, other surface basins and subsurface soakages, producing rich vegetation in the vicinity of stored water, and attracting animals and people to the rich resources.[6] These rich resources support a population of several 10s to several 100s of people living in a murelgwa for a period of weeks or months. The murelgwa consisted of several mura that aggregate in the manner described in Figure 4.13. This large, complex camp serves as a fixed base for

[6] Precisely how rainfall during a La Nina event translates into resource availability after the event ends is a more complex issue that I do not address here.

foraging sorties within a radius of perhaps 30 km of the camp, and as a social center for conducting trade, performing initiations and increase events, and arranging marriages.

Since long term shifts in the distribution of plentiful resources depended upon the unpredictable distribution of significant rainfall, admission to the Country in which an ample supply of water and food occurred generally was not prohibited on the basis of Country or language group membership but, with permission, was open to all since heavy rain certainly would fall in a different location the next time. The settlement pattern was essentially semi-sedentary for weeks or months, often with members of multiple language groups present. These optimal conditions facilitated the use of anthropogenic fire (O'Connell, Latz and Barnett 1983:99) to further enhance food production and collection in the vicinity of the murelgwa. Residential group compositions broadly defined were at their greatest complexity during the rich time.

Phase 2. Good time. This is a long phase of highly *sustainable* conditions. As the rich time passes and the availability of water and food diminishes, people begin to drift away in smaller groups. The murelgwa gradually breaks into its constituent mura whose members migrate to areas that are known to have adequate water and food to support their dispersed populations for many months. Each of the dispersed mura serves as a fixed base for foraging sorties. The dispersed settlement pattern in this phase facilitates the use of anthropogenic fire to enhance food production and collection in the vicinity of each mura and between neighboring mura. So long as unpredictable thunderstorms yield modest amounts of water where they fall and along the dry channels through which they flow, the people can relocate their camps now and then, and sustain life indefinitely under these ordinary but good conditions. Residential group compositions were less complex in mura than in murelgwa.

Phase 3. Drought. This is a protracted phase of severe and intensifying hardship. As drought conditions develop, perhaps as a result of an El Nino event, people begin to migrate away from the mura in nuclear family groups. Eventually, the mura breaks into its constituent residences that disperse to isolated locations where small amounts of water and food may be sufficient to sustain a few people until living conditions improve. The *inderluga* or isolated family residences with < 10 people may be consistently mobile, with no fixed base, as the search for water and food intensifies. Under these conditions, anthropogenic fire would be used locally to enhance the collection of food whenever possible, but probably would not be used to enhance its production.

Phase 4. Flood. This short phase of most severe hardship lasts from days to weeks depending upon the magnitude and duration of the flood. The flood phase may be associated

with either a) an Indian Ocean monsoon penetrating Central Australia from the northwest, or b) a Pacific Ocean typhoon penetrating from the northeast, often with extra intensification associated with La Niña conditions originating in the Pacific. During the flood phase, heavy rains occur throughout the region. The water supply is more than adequate but food resources diminish very quickly since foraging and hunting are severely impaired, food preservation is impossible, and travel may be impossible due to raging floods in otherwise dry riverbeds. Isolated families of <10 people who were struggling to stay alive during the drought suddenly find themselves struggling, perhaps even harder, to stay alive during the flood, the starvation and the diseases that may accompany it. This is the time when large, fierce dogs used by the women temporarily replaced weapons used by the men in the hunting of kangaroos. During droughts and floods, residential group compositions were at their simplest. When water availability significantly improved, residents of inderluga and mura migrated toward the anticipated location of the next murelgwa, thus rejoining the aggregated population to restart the cycle at Phase 1 above.

At least in the interior of Australia, recurrence intervals between extreme values of floods and droughts generally are measured in years or decades, but they rarely coincide with a solar year. Over the millennia since Aboriginal people migrated into Australia, cycles such as these have characterized life throughout much of the Australian interior, with long term modifications associated with global cooling and warming. I suggest that so-called 100-year floods such as those in 2010-2012 pale in comparison with floods or droughts recurring at 1000-year or 10,000-year intervals, perhaps associated with the onset and termination of the Pleistocene.

Against the background provided by these long term, irregular resource cycles, it is possible to summarize preliminary generalizations about residency of many or most members of the Alyawarra population, most of the time, sorted by sex, age and marital status.

- Married men and their wives and young children formed cohesive units that generally resided together in the same mobile anoardegan in all phases of the cycle.
- Widows and other unmarried women generally resided together in the same mobile alugera throughout the cycle, with widows residing near daughters whenever possible.
- Widowers resided at communal ngundyas during phases 1 and 2, and at their own private ngundya, generally in a camp with a son, during phases 3 and 4.
- Unmarried initiated young men resided ephemerally at communal ngundyas during phase 1, where they received training and were generally isolated from women. During phase 2, they circulated among ngundyas associated with various muras, and

> continued to receive training from widowers and other men residing or congregating at all of them. I have no direct knowledge of what happened to these unmarried young men during phases 3 and 4 before bores (i.e., windmills with water storage tanks, components of which are visible in Figure 4.1) contributed greatly to sedentarization among the Alyawarra.

Failure by anthropologists and others to deal clearly with relations between regular seasons and irregular climatic phases yields confusion. Assuming that all years have the same basic pattern in Australia that they have in England is a simplifying assumption that obscures a great deal. Here I review three examples.

O'Connell's (1977:269) excellent description of the "annual round" among the Alyawarra, based on evidence from Walbiri (Meggitt 1962), Aranda (Spencer and Gillen 1899, 1927; Strehlow 1965) and Warramanga (Spencer and Gillen 1904), was published before the 1982–83 El Niño event called attention to these very widespread irregularities. Thus he structured his description around "dry winter months" and "the wet season", with an acknowledgement that "this pattern varied substantially in any given year, depending on the amount and distribution of rainfall." He noted also that ceremonies "took place most often in the autumn or early winter … at the end of the wet season or the beginning of the dry".

Memmott's (2007) excellent summary of a vast amount of information concerning Aboriginal architecture, settlement patterns and residential group compositions follows the lead provided by his many sources almost all of which were published before El Niño and La Niña were well known. It is not surprising that he pays more attention to 12-month solar seasonal cycles than to large scale irregular climate rhythms and extremes associated with monsoons, cyclones, El Niño and La Niña.

Bliege Bird et al. (2008) conducted valuable research in 2002 on fire stick farming in Aboriginal Australia, near the middle of a year-long El Niño event. Since their report refers exclusively to dates such as November-December and European seasons such as summer and winter, it could have been strengthened by addressing shifting climatic phases that had unreported impacts on their findings (see Appendix 2 from US-NOAA 2013).

I conducted my fieldwork with the Alyawarra between May 1971 and March 1972 during the last 11 months of a moderate La Niña event (Appendix 2) spanning July 1970 through March 1972. Thus my observations differ from what they would have been had I worked there during a comparable El Niño event. Since the unpredictability and extreme values of all of the variables mentioned above may have major impacts on residential group compositions, I

have situated my discussion of them within La Niña. Since all of my work occurred during a La Niña event, I distinguish as needed between wet and dry weather within the generally wet La Niña event.

History

Every fifty years for about a century, Spencer and Gillen (1899), Strehlow (1947), Birdsell (1993) and many others argued that Aboriginal societies were doomed to extinction in the near future, and that cultural and social disruption under various guises would make it impossible for later anthropologists to duplicate early work or to test early conclusions. Their concerns no doubt were legitimate and benign, but the obituaries they wrote were premature. Perhaps they feared that their own work rested on insecure foundations, and hoped to dissuade others from examining it closely or questioning its merits at a later date.

In this paper, I take a different approach. I argue that the society and culture of the Alyawarra at MacDonald Downs in 1971-72 were not lost or doomed but were robust and abiding (Stanner 1965a:167). The lives of the people were different from what they were in 1788 when Europeans colonized the continent or 1923 when the Chalmers family homesteaded in the Sandover-Bundey basin. But in my opinion, these people had survived half a century of colonization with remarkably little damage in comparison with many other Aboriginal people, especially those in towns, missions and settlements, and here I try to make a persuasive case for my interpretation.

The Alyawarra in 1971 were situated amidst two radically different kinds of human history. Their unique deep history reached back perhaps fifty millennia and was expressed in the extraordinarily complex idiom of the Dreamtime, while their recent history was intensely entangled with European colonialism. Attempting to understand how those two histories worked together was a precondition for understanding Alyawarra residential group compositions.

It is easy enough for Europeans to dismiss Aboriginal oral traditions as “nothing but myths”, but it is much harder for them to understand that European beliefs concerning Aboriginal people also may be “nothing but myths” (Dousset and Glaskin 2007). Those who argued that Aboriginal Australians were a people without history may have misunderstood what they saw and, reasoning analogically, misclassified Aboriginal history as “primitive religion”. As two of a vast array of obvious examples, I suggest that Aboriginal history is depicted powerfully in Strehlow’s (1947, 1971) translations of Aranda oral traditions and in the magnificent art, sculpture, music and dance that embody those traditions, and it appears

brilliantly in Spencer and Gillen's (1899: inside back cover) maps of Dreaming tracks followed by migrating groups of *Udnirringita, Emu* and *Achilpa* people, as depicted in Figure 7.6 below. Unfortunately literal translations of these texts and images are only first steps toward intercultural understanding. Getting beyond the myths – Aboriginal and European - is important for all of us[7].

Impacts of colonization. Four of the many historical phenomena that modified Alyawarra lifestyles in the Sandover-Bundey River region between 1923 and 1971 included: a) Black-White *conflict* concerning access to land and resources; b) introduction of *bores* or permanent water supplies that encouraged sedentarization; c) introduction of *motor vehicles*; and d) distribution of government subsidized *rations* that supplemented traditional foods. Here I am not concerned with specific historical events, but rather with historical processes that modified all Aboriginal societies, devastating some, touching others more gently.

Conflict. Memmott (1998:206-208; also in Lyon and Parsons, 1989:3-13;) summarizes some main features of European colonization among the Wakaya in the Barkly Tableland and the upper Georgina River basin in the late 19th century, and the adjacent northern Alyawarra at Murray, Elkedra and Frew cattle stations near the Davenport Ranges and Barkly Tableland in the early 20th century. His account describes a period – Memmott (1998:206) called it "cowboy time" or "revolver time", Bell (1993:69) called it "killing time" - of intense conflict and violence over land, waterholes and other resources. During the 1920s, many northern Alyawarra migrated northeast across the Wakaya Desert to escape the violence occurring in their homelands. They followed a line of soakages to Soudan Station, then maintained a semi-sedentary lifestyle for 4 or 5 decades at Avon Downs, Soudan, Austral Downs, Lake Nash and Barkly Downs (paraphrased from Memmott 1998:206). As Memmott (2014 p.c.)

[7] My remarks concerning Black-White relations and the impacts of colonialism at MacDonald Downs in 1971-72 are not intended to be encyclopedic or detailed, but are based on a wide range of materials. **Oral sources** include: my direct observations of Black-White interactions at MacDonald Downs over a period of 11 months; my conversations with Rose and Mac Chalmers throughout my fieldwork, and my lengthy exchange of letters with Rose Chalmers (1973-75) after I completed my fieldwork; a letter composed by Jones (2004) and his family, lifelong Alyawarra residents of MacDonald Downs Station, upon the death of Mac Chalmers in July of that year; my frequent discussions with members of the Alyawarra community at MacDonald Downs. **Published sources** include: Margaret Ford's (1966) valuable biography of the families of Charles Chalmers and Alex Kerr entitled *Beyond the Furthest Fences*, based on interviews with informants and on published sources; early ethnographic research with neighboring language groups by Spencer and Gillen (1899), Strehlow (1947, 1965) and Meggitt (1962); Memmott's (1998) and Bell's (1993) reconstructions of major events in Alyawarra history during the century between 1880 and 1989; and later 20th century ethnographic, ethnoarchaeological, linguistic and other research concerning the Alyawarra by Bern (1969), Binford (1984,1986), Green (1992), Moyle (1986), O'Connell and his colleagues (1977-2000), Yallop (1969) and myself. Upfield (1940/1986:54 ff.) is of questionable value for the Illiaura and Wakaya.

notes, the relevant material is embedded in land claim and native title reports, but there is no in-depth published history of this region.

From the 1920s onward, southern Alyawarra in the Sandover-Bundey region experienced some violence but apparently on a much smaller scale than in the north, as implied by very few references to violence there by Ford (1966:*passim*), Bell (1993:41-109), Lyon and Parsons (1989) and Memmott (1998). In 1923, the Chalmers family homesteaded MacDonald Downs and quickly became known as "good bosses", in striking contrast with "cheeky bosses" (Aboriginal English for *aggressive* or *offensive*: Lyon and Parsons 1989:vi) such as the violent Kennedy and Riley at Elkedra Station, and Harry Henty at Frew station (Memmott 1998:207). Thus early on, MacDonald Downs and affiliated properties became a safe haven for the southern Alyawarra.

Nevertheless the Alyawarra remained mobile. In 1958 they and Kaytej began to "drift into" Warrabri settlement, but their provenance was ambiguous (Bell 1993:78). Since Warrabri was near Murray, Elkedra and Frew stations adjacent to the Davenport Ranges, it is likely that some of them came from those stations even though people from there had migrated almost to the Queensland border a generation earlier. NTA census data (Denham 2014b) shows movements at the same time from the Sandover-Bundey region to Warrabri as well. Furthermore, a northern Alyawarra group moved from Avon Downs to Camooweal in 1976, then back to the Davenports in the 1980s to establish Canteen Creek outstation (Memmott 2014 p.c.).

It appears that the northern Alyawarra may have been more mobile than those from further south, but the differences may be due in part to lack of completeness and precision in the data. Yet it is likely that seeking the protection of "good bosses" and avoiding "cheeky bosses" contributed significantly to sustaining the mobility of these people, not sending them to totally different places in Australia but rather stimulating them to move, more or less often and at different rates and directions, from place to place in or near Alyawarra territory over a period of generations.

Motor vehicles. Certainly the introduction of motor vehicles between the 1920s and the 1970s changed the way these migratory or nomadic people traveled, but cars were a mixed blessing. Among the Alyawarra, their number was small. I did not conduct censuses of motor vehicles, but the aerial photograph of Gurlanda on 19 March 1972 shows 7 of them, including at least two that were inoperative, at a time when the camp population was 78 people; i.e. an average of about 15 people per usable vehicle. O'Connell and Hawkes (1984:517) report that "during 1974-75, there were 8-10 such vehicles at Bendaijurem

(population 100 people), 1 or 2 of which were in operating condition at any given time." Inaccessibility of fuel was a chronic problem, and unreliability of vehicles a chronic hazard. The stated policy was to travel always in a convoy of at least two vehicles so one could serve as a "lifeboat" when the other failed, but having two vehicles that were usable at the same time occurred only sporadically. Vehicles owned by the Alyawarra were used with considerable difficulty for long distance travel (e.g., to Lake Nash Station), but at Gurlanda camp they were used only rarely for local hunting and foraging where they were more trouble than they were worth. Thus machines that ostensibly enhanced mobility for highly mobile people did so in a very limited manner in my research population (see N. Peterson 2004 for comparable descriptions of motor vehicles in Central Australia).

Bores. The introduction of wind-powered pumps or bores to provide reliable water supplies of variable quality at fixed locations for European settlers and their livestock contributed to the gradual, partial or apparent sedentarization of Aboriginal people such as the Alyawarra. By 1971, Alyawarra camps among my research population generally were established perhaps half a mile (0.8 km) from a reliable bore, and water quality was consistently good. For many reasons to be introduced below, camps often were moved from one location to another adjacent to the same bore, or from one bore to another within Alyawarra territory. Selecting a suitable bore seemed to be a prime consideration when relocating a camp anywhere in the region.

Rations. Likewise, changes in Aboriginal diets and behaviors associated with obtaining food contributed to sedentarization as well, but as was true of conflict, bores and motor vehicles, there was nothing simple about this factor.

Rowse (1998:20 *et seq.*) argues that relations between Whites and Blacks in mid-20th century Central Australia entailed rationing and bartering. By rationing he means that a rationer, in this case a White Australian government, sets and distributes the minimum amount required to purchase acquiescence by Australian Aboriginal people to an imposed social order. By bartering he means "a transparent transaction in which the equivalent value of the things being exchanged is established to the barterers' mutual satisfaction." Both were applicable to the Alyawarra at MacDonald Downs and Derry Downs. Using Rowse's terms, the Chalmers were rationers in the sense that they distributed subsidized rations after the government created its rationing program, but in a very broad sense, barter was far more important in their relations with the Alyawarra.

Over the half-century ending in 1971, the Chalmers family established a close, collaborative relationship with the Alyawarra based in part on Mac Chalmers' fluency in their language

beginning when he arrived at MacDonald Downs in 1923 at the age of 8 years, combined with his lifelong commitment to the notion that the land belonged to the Alyawarra.

In their early years at MacDonald Downs, the Chalmers family maintained a relationship with the Alyawarra based on an expression that I heard repeatedly from the Alyawarra, almost as a mantra, throughout my fieldwork. It said, quite simply, "We take care of them." Alyawarra men used it with reference to their women and children, their young men as they approached initiation and the "singing" that it entailed, their elderly relatives who could not function independently, and especially with regard to their own and their neighbors' Dreamings, Countries and *angerdelungwa* stones and carvings. Furthermore they extended it to the Chalmers family and the Chalmers family reciprocated: they "took care of" the Alyawarra. "We take care of them" encapsulates the ethos of the Dreamtime.[8] I consider it to be the key to understanding the extraordinary persistence under extraordinary conditions of the Alyawarra and their culture. It functioned for half a century in both directions between the Alyawarra and the Chalmers.

In their later years, the Chalmers maintained a balanced and harmonious relationship with the Alyawarra in part by supplementing[9] government rations. They provided extra substantial food such as oranges and beef, plus medical care, transportation to and from Alice Springs when necessary, monthly movies, protection from the Northern Territory Administration and religious missions, and so forth. Thus the Alyawarra at MacDonald Downs and Derry Downs did not "live on rations" but rather they retained access to their own Countries and lived there with a considerable degree of financial and social security, supported in part by rations that enabled them to follow their own traditions as well as anybody could do that under colonial rule. Perhaps it is reasonable to frame this relationship in terms of Rowse's (1998) barter and McGrath's (1987) accommodation (Hokari 2002).

O'Connell and his colleagues conducted detailed ethnoarchaeological research at MacDonald Downs in the mid-1970s with the same Alyawarra population that I studied in 1971-72, but at Bendaijerum camp rather than Gurlanda camp (O'Connell 1977a, 1977b, 1987; O'Connell and Hawkes 1981, 1984; O'Connell, Latz and Barnett 1983; Hawkes and O'Connell 1981; Binford 1984, 1986; Binford and O'Connell 1984). I conclude with an important example of his findings.

[8] The practice of "looking after" (Austin-Broos 2003:120). This is precisely the theme of Jones's (2004) letter upon the death of Mac Chalmers in which he says that the Chalmers family looked after (took care of) the Aboriginal people, and the Aboriginal people looked after the Chalmers family.

[9] With about 6000 mi^2 of pasture land and a stocking rate of 3 head of cattle per mi^2 (approximately 18,000 head of cattle) the Chalmers family as a whole could behave generously toward the Alyawarra.

In the mid-1970s Bendaijerum camp had about 100 Alyawara and Eastern Aranda residents of both sexes and all ages. The cattle station employed about ten to fifteen of the men on a seasonal basis as stockmen, and a few of the women worked as domestics. Most received government subsidies including welfare checks, other cash payments, and weekly supplies of rations including flour, tea, sugar, powdered milk, and molasses. Canned goods, candy, soft drinks and fuel were available for purchase at a small cash store (O'Connell and Hawkes 1984:507).

According to O'Connell and Hawkes (1984:507), the Alyawarra at Bendaijerum camp still relied on hunting and gathering for much of their diet in the mid-1970s. Their paper presents detailed data for 260 days between 29 April 1974 and 26 March 1975, covering about 75-80% of all men's hunting trips (71/93) and about 14% of all women's foraging trips (18/125).

Generally in Central Australian societies, women's foraging yielded more than 50% of a family's diet, but by the mid-1970s women's foraging at Bendaijerum had declined precipitously, yielding only 5% of the total diet (O'Connell and Hawkes 1984:509), perhaps because rations had replaced seeds and other items that the women collected. On the other hand, rations had not replaced the meat that men hunted, and their hunting continued to yield a great deal of it. Three species - red kangaroo (*Megaleia rufa*), euro (*Macropus robustus*), and bustard (*Eupodotis australis*) - made up more than 80% of the total number of individual prey taken and more than 95% of their total weight. In the twelve-month period beginning in May 1974 (O'Connell and Hawkes 1984:516-517), hunters at Bendaijerum took an estimated 400 kangaroos (mean 25 kg), 30 euros (mean 18 kg) and 40 bustards (mean 7 kg), plus 545 kg of other animal species. That is a total of 11,363 kg of meat per year for about 100 people including a great many children, or a remarkable total of 250 pounds of meat (less skin, bones, offal) per person per year.

Although comparable data is missing for the pre-contact period, this figure suggests that the use of rifles may have increased hunters' yields thereby enhancing traditional lifestyles, but O'Connell's (2014 p.c.) response to my questions about his data rejected that hypothesis:

> "It might be worth providing some context, given that the hunting success rates will seem high to anyone with any experience in that part of Central Australia. The 1974 field session coincided with La Niña conditions [a strong La Niña year – see Appendix 2], which among other things meant a significant peak in rainfall – a total of more than 40 inches for that rainfall year, four times the long term annual average,

> and at that time the highest yearly total since record keeping began in Alice Springs in the 19th century.
>
> "The high rainfall provoked a real peak in red kangaroo numbers in some habitats, notably on the short grass plains southwest of Bundey River Station. It was not unusual to see more than 100 individuals on a slow two-hour run across that landscape from May '74, when fieldwork began, well into the following year. The contrast with conditions encountered during September '73 and July '83 visits was very striking. The '73 visit was at the end of something like 30-36 months of little or no measurable rainfall [a strong El Niño year – see Appendix 2]. I don't know what the numbers were for the early '80s – the country didn't look as parched as it did in '73 but was still pretty dry. I saw very few kangaroo on either visit, certainly nothing like the numbers encountered throughout '74 and into the following year. My bet is that the '74 weather conditions were also responsible for the high encounter rate for bustards, as well for the high seed productivity of acacias all across that country in September - November '74. In short, given my interest in foraging, it was a good – if unusual – year to be in the field."

In other words, this large yield was normal – neither new nor exceptional – for a La Niña year.

Although Bell (1993) says almost nothing about the Chalmers family, she seems to agree with my interpretation of Aboriginal conditions at MacDonald Downs. Writing of the Alyawarra living at Warrabri Settlement in 1976-82, she says (Bell 1993:76, 88) that the Alyawarra camp on the east side of the settlement was as far as possible from the settlement core.

> "If one tried hard and always faced the east, it would be almost possible to collect sufficient data to write an ethnography of the "traditional" life of the Alyawarra."

For the Alyawarra, looking toward the east from Warrabri was akin to looking backward in time. It implied looking toward traditional Alyawarra territory, values and history, and to a great extent was aimed at the camps at MacDonald Downs and Derry Downs where the Chalmers family served for half a century as a buffer between White Australians and the Alyawarra (Ford 1966).

I cannot argue that the missing half century between 1923 and 1971 made no difference. Certainly Alyawarra society changed significantly during that period due to factors

introduced above. But I do argue that these Alyawarra experienced far less disruption than most other Aboriginal societies, and that we can learn a great deal about Alyawarra social organization in 1923 and earlier by paying careful attention to their behavior in 1971. My confidence in that argument is particularly strong with regard to residential group compositions.

In words that apply even more to Central Australia than to his own fictional Yoknapatawpha County, Mississippi, Faulkner (1951: Act I, scene iii) famously said: "The past is never dead. It's not even past."

Kinship

This paper explores relationships between kinship and residential group compositions in one Australian Aboriginal society. Understanding residential group compositions from an Alyawarra perspective presupposes understanding both the technical and the historical complexity of Alyawarra descent, marriage and kinship in its egocentric and sociocentric forms. Here I summarize old and new findings (Denham, McDaniel and Atkins 1979, Denham and White 2005, Denham 2012, Denham 2013a) so that I can use these concepts in my analysis of residential group compositions.

The Alyawarra used two kinds of kinship terminologies concurrently, one I call "kin terms", the other I call "skin terms". Each kind consisted of a set of terms with rules that defined them. Kin terms were ubiquitous, but skin terms were not used in some Australian Aboriginal societies.

Kin terms constituted an egocentric terminology with a vocabulary of about 21 reference terms used by male speakers and a closely related set of 21 used by female speakers. Kin terms were especially useful within one's own language group for defining detailed interpersonal relationships and arranging marriages. Each speaker used at least one item from the set to refer to each person who was linked to him or her via specific kinds of pathways (rules). If two people were linked by multiple pathways, each could use multiple kin terms to denote the various pathways in use. I express these pathways or rules by using an idealized genealogical diagram, then defining their kin terms relatively, in an ego-centered manner, depending upon each speaker's position in the array.

Skin terms constituted a sociocentric terminology with 2, 4, 8, 16 or 32 terms in Australian Aboriginal societies, rarely 6 or 10 terms outside of Australia. In a section system, every person was fixed at birth as a lifelong member of one named section, so skin terms – vaguely

like Western surnames - permanently reflected his fixed position as seen from all other positions in the society. Skin terms tended to be more intelligible among diverse language groups than did kin terms, and were especially valuable when arranging marriages between language groups.

Precisely how kin and skin were related to each other conceptually and historically remains unresolved. Whether they were independent inventions that had converged or coordinate parsings of the same conceptual universe remains unclear (McConvell 1985a; Allen 1998, 2007; Read 2008; Leaf and Read 2012; and many others).

Kin terms for primary genealogical relations translated loosely into English as F(ather), M(other), B(rother), Z=(Sister), S(on), D(aughter), W(ife), H(usband), etc. However, in the context of Australian Aboriginal societies, these terms encompassed an extended range of sociologically equivalent genealogical and classificatory kin; e.g., F encompassed FB and FFBS while W encompassed MBD and MMBDD, each group encompassed by a single kin term. Alyawarra kin terms and the rules expressed by their relationships with each other were related to Spencer and Gillen's (1899) Aranda terminology and Radcliffe-Brown's (1913) Kariera terminology. As such they belonged to the Kariera-Dravidian-Polynesian family (Trautmann 1981, Read 2013a) of kin terminologies.

Kin terms and skin terms were applied universally in Aboriginal Australia; i.e., all of these terms applied not only to one's own primary kin, but to all members of one's own society (Barnard 1978) defined broadly. Since societal exogamy (Denham 2013a) and diverse forms of intersocietal economic and ceremonial collaboration blurred the boundaries of language groups and nations, all Aboriginal people could consider themselves to be actual or potential relatives of all other Aboriginal people, in theory if not necessarily in practice. Thus all are within the range of kin terms and skin terms.

Section-subsection interface. As Figure 3.6 shows, the Alyawarra and the Eastern and Southern Aranda were precisely on the border between the 8-subsection system of the Northern Aranda, Walbri, Anmatjera and many others to the northwest of Alyawarra territory, and the 4-section systems that characterized adjacent parts of Queensland and New South Wales to the east. On the one hand, the Alyawarra used an unambiguous 4-section system with a set of skin terms that was almost identical with Eastern Aranda and Southern Aranda skin terms. On the other hand, they used a set of kin terms that was almost identical with that of the Northern Aranda 8-subsection system. In other words, they seemed to have adjusted their Northern Aranda-like kin terms and their Eastern Aranda-like skin terms to eliminate incompatibilities between them.

One aspect of these adjustments is that the kin terms showed four explicit descent lines that corresponded to the four named sections, and four implicit descent lines that corresponded to the four unnamed subsections. The Alyawarra were not unique in this regard: Lawrence (1937:338) used the term "anonym" to designate unnamed subsections embedded in section systems and cited the Southern Aranda as an example.

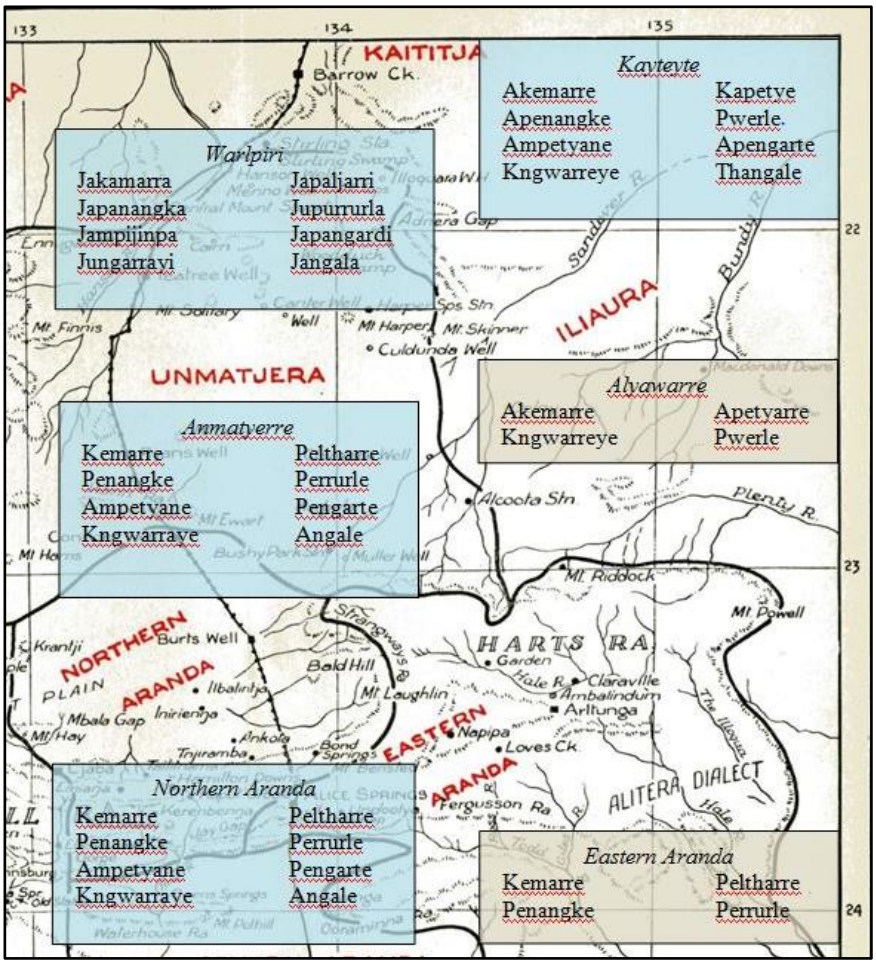


Figure 3.6. Skin terms used by the Alyawarra and neighboring societies. Here I show the explicit 4-section Alyawarra skin terminology. Southern Aranda are below the bottom of the map. Standardized spellings from Koch (1997) and his sources.

It was not clear what the adjustments yielded. A simple static interpretation was that the Alyawarra formed a stable hybrid of section and subsection systems, while a more complex dynamic interpretation was that the society was in transition from one of those systems to the other. Historically, subsection terms seemed to have been "migrating" from northwest to

southeast in the 19th century, but it is less clear whether and how kin terminologies might have changed as more elaborate sets of skin terms were introduced. It is at least plausible that the Alyawarra were making the transition from 4 sections to 8 subsections when the arrival of Europeans interrupted the process. In any event, the co-occurrence of the 8-subsection kin terminology with the 4-section skin terminology suggested that the boundary between section and subsection systems was characterized by synthesis, integration and creativity (McConvell 1985a, 1985b; Dousset 2005).

Figure 3.7 shows the articulation of Alyawarra kin and skin in a 4-section system, depicting ideal structural relations among ego, father, mother and spouse within each nuclear family regardless of whether marriages occurred within or between language groups. Knowing the section to which one's spouse should belong was necessary but was not sufficient for identifying a potential or real spouse since each section contained a broad range of people related to ego through diverse pathways that were not genealogically isomorphic.

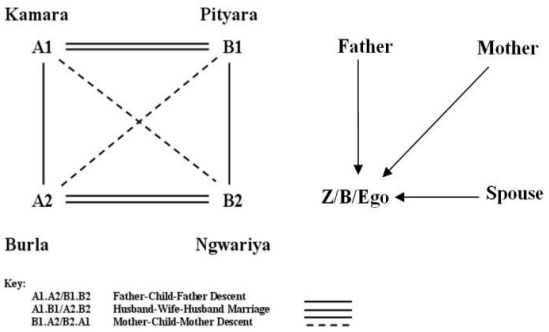


Figure 3.7. Section terms (A1=Kamara, etc.) and descent / marriage rules, with expected section relations between ego and his father, mother and spouse. 1 and 2 are alternating generation moieties, A and B are patri-descent moieties or sides.

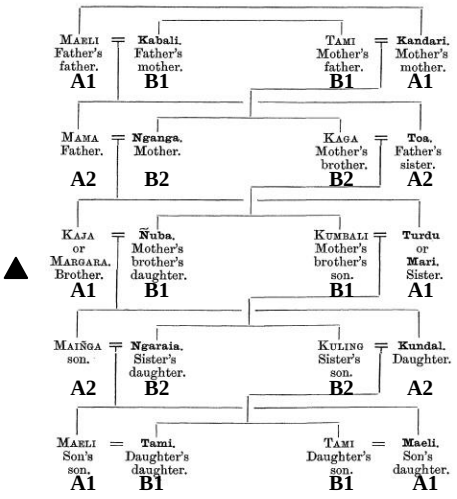


Figure 3.8. Distribution of 4-section Kariera kin terms on a hypothetical 5-generation genealogical grid that is an expanded version of relations in Figure 3.7. Ego ▲ marries *nuba* which corresponds to the category {MBD …}; i.e., a 1st cousin in the English language. 1 and 2 are alternating generation moieties, A and B are patridescent moieties or sides.

Figure 3.8, in the manner of Radcliffe-Brown (1930) and Lévi-Strauss (1949), displays classic 4-section Kariera kin terms on a diagram called a hypothetical genealogical grid or a kin term map (Leaf and Read 2012). The diagram shows an expanded version of relations in Figure 3.7. It accommodates a male ego and his sister, both of them in the A descent line,

plus both of their spouses in the B descent line. In this kin term array, the men appear to exchange sisters, each marrying his MBD or FZD, yielding a pattern known as bilateral sibling exchange marriage. From an English language viewpoint, their spouses may be biological or classificatory 1st cousins.

If Alyawarra kin terms matched the 4-section system depicted in Figure 3.8, we would expect them to fit, albeit imperfectly, onto a diagram such as the one in Figure 3.9. However, due to the presence of the 8-subsection kin terminology and the 4-section skin terminology, and other factors introduced below, the Alyawarra terms and rules do not fit properly on the diagram in Figure 3.9.

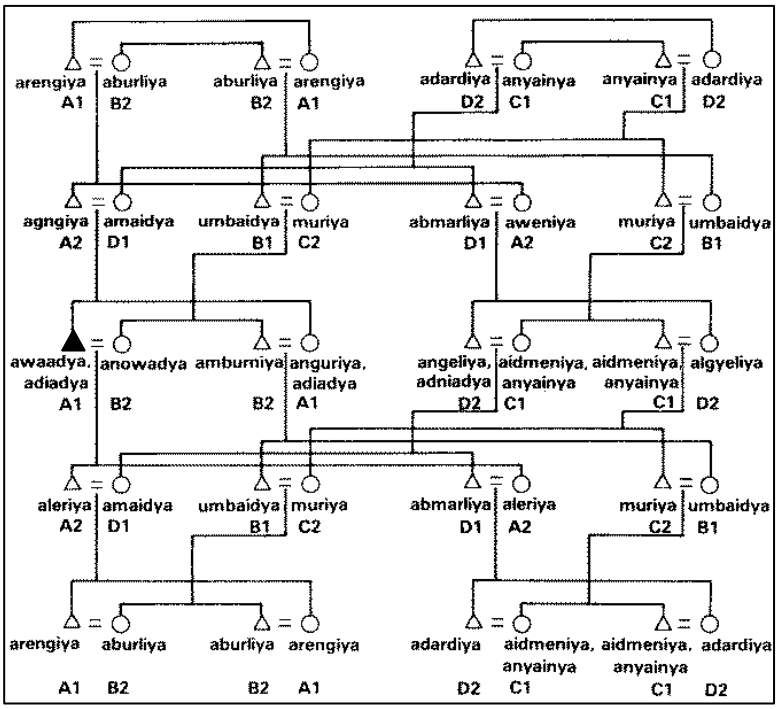


Figure 3.9. Traditional representation of Aranda-style 8-subsection system. Egocentric kin terms (lower case text) and sociocentric skin terms (upper case alphanumeric codes) among the Alyawarra. Kin terms used by male speakers. Female = O, male = △ , Ego or speaker =▲.
Ego marries *anowadya* = MMBDD, his 2nd cousin; he does not marry algyeliya = MBD, his 1st cousin.

Figure 3.9 is a traditional diagrammatic representation of Alyawarra kinship terms displayed on a different hypothetical genealogical grid, still in the manner of Radcliffe-Brown (1930) and Lévi-Strauss (1949). This grid splits the two descent moieties in half so Ego's biological and classificatory 1st and 2nd cousins are in different descent lines within the same moieties; i.e., each Ego can marry his MMBDD (2nd cousin), but not his MBD (1st cousin). From an

English language perspective, the resulting pattern depicts biological or classificatory bilateral sibling exchange marriage between 2nd cousins.

Generation intervals. Figure 3.9 may be interpreted in at least three different senses.

1. It may be viewed as a true genealogy of related people, but I do not deal with this case here.
2. It may be viewed as a representation of relationships among kin terms used by the Alyawarra. In this case it represents the Alyawarra kinship terminology reasonably well, and kinship specialists generally use it in this sense (e.g., Read 2013a). Viewed in this way, the diagram does not specify a marriage rule stipulating behavior, but instead indicates, according to Read (2014 p.c.), that the kin term *anowadya*, determined by the kin term product *aleriya* of *aleriya* of [*awaadya*, *adiadya*] of *muriya* of *muriya* = *aleriaya* of *alegyelia* of *muriya*, must be the spouse relation for the terminology to have the structure given in Figure 3.7. Thus for a marriage to be consistent with the structure of the terminology (Leaf and Read 2012), a man must refer to the woman he marries as *anowadya*, either because he marries a woman with whom he has that kin relation before marriage or because he refers to that woman by the term *anowadya* after marriage. I accept this interpretation.
3. It may be viewed as a set of marriage rules stipulating behavior for members of the society to which the diagram refers. In this case it disregards or misrepresents demographic properties of Alyawarra society that are basic to marriage rules and practices; thus I do not accept it.

Figure 3.9, when used or interpreted as a set of marriage rules, misrepresents Alyawarra rules and practices, just as it misrepresents marriage rules and practices among the Aranda, the Kariera and many other Aboriginal societies. Spencer and Gillen (1899:558-560) described the *tualcha mura* custom among the Aranda but omitted it when they constructed their account of Aranda kinship. Guhr (1963) rediscovered it and pointed out its implications. The custom stipulates that men will not marry until they are about 28 years old, and that the women they then marry will be about 14 years old, yielding a systematic and pervasive 14 year age difference between husbands and wives.

Many have commented on this extreme W<H age difference throughout Australia – not just among the Aranda, but also among the Alyawarra and many others - and recent demographic data support it (Binford 2001, Fenner 2005, Helgason et al. 2003, Tremblay and Ve´zina 2000). But Radcliffe-Brown, Lévi-Strauss and many others, whose primary focus was on kinship terminologies rather than marriage practices, simply ignored this systematic age

difference for a century; they were aware of it but treated it as an "inconvenient (or irrelevant) truth" (Guggenheim and Gore 2006). Since my primary focus is on marriage, I cannot ignore the highly significant mean age difference of 14+ years between spouses (Denham, McDaniel and Atkins 1979; Denham and White 2005; Denham 2011, 2012, 2013a) that results from large, systematic differences between male and female generation intervals.

Figure 3.10 introduces accurately measured parent-child generation intervals to replace the arbitrary and fictitious intervals that were standardized at a value of zero in the 19th century when accurate intervals were unknown and the implications of differences in intervals were unrecognized. Specifically, Figure 3.9 disregards generation intervals, while Figure 3.10 is based on a mean Mother-Child generation interval of 28 years, a mean Father-Child generation interval of 42 years and a resulting mean Wife<Husband age difference of 14 years. Age differences of this magnitude appear to be typical of Australian Aboriginal societies, but the fact that the generation intervals for Mother-Child and Father-Child are unequal is more important than either their absolute values or the magnitude of their inequality. In the context of cross-cousin marriage as depicted in Figure 3.9, the presence of these unequal parent-child generation intervals makes it impossible to sustain systematic bilateral sibling exchange marriage, and matrilateral (MBD) cross-cousin marriage replaces it. As a result, horizontally closed generations as shown in Figures 3.9 are replaced by diagonally open generations as shown in Figure 3.10. Detailed explanations of these relationships appear in Denham (2012:38-42, Figures 3.2, 3.7).

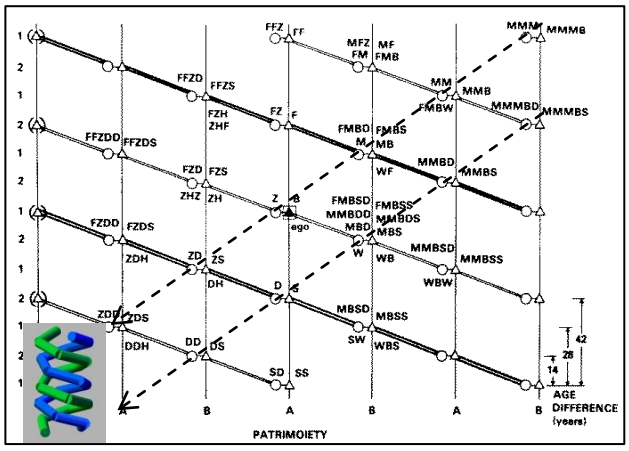


Figure 3.10. 2-dimensional age biased upgrade of Figure 3.9 based on accurate parent-child and wife-husband age intervals. Each node represents a sibling set.

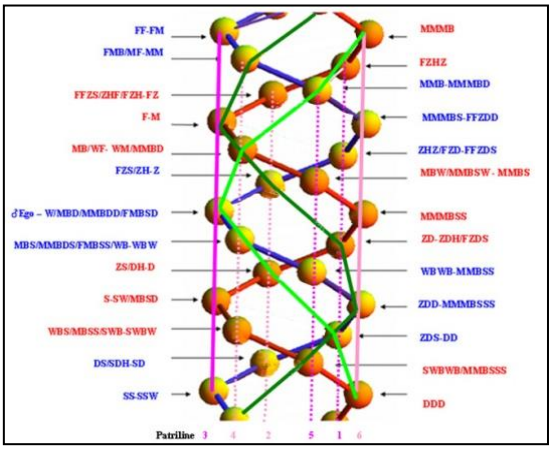


Figure 3.11. 3-dimensional age biased upgrade of Figure 3.9, a hypothetical helix generated by systematic MBD marriage in a small, endogamous society. Each node represents a marital pair.

Furthermore, introducing accurate generation intervals radically simplifies relationships between kin terms and skin terms. Figure 3.7 serves as the baseline in which vertical patridescent moieties A and B intersect regularly with horizontal generation moieties 1 (F, S) and 2 (FF, Ego, SS); i.e., they are "synchronized" to form tetrads $\{^{A1-B1}_{A2-B2}\}$ based on 1st cousin (MBD and FZD) marriage. The same pattern appears clearly in the expanded format of Figure 3.8.

In Figure 3.9, that simple regularity is lost when 2nd cousin marriage replaces 1st cousin marriage. To depict 2nd cousin marriage on the grid in Figure 3.9, generation moieties and patridescent moieties are "desynchronized" when 1st and 2nd cousins are diagrammatically separated from each other; i.e., each horizontal generation or sibling-in-law chain in the diagram is incorrectly populated by members of both generation moieties thereby destroying the regularity shown in Figures 3.7 and 3.8.

But in Figure 3.10, MBD and MMBDD appear in the same cell or node, and each diagonal sibling-in-law chain is populated by members of only one generation moiety, thereby restoring the simplicity and regularity of the tetrads in Figure 3.7. Thus in Figure 3.10 the same genealogical grid format accommodates both 1st and 2nd cousin marriage.

While introducing accurate parent-child generation intervals in Figure 3.10 unifies 1st and 2nd cross cousins in the same cell, it necessarily separates matrilateral cousins (MBD, MMBDD: below-right from ego) from patrilateral cousins (FZD, FFZDD: above-left from ego). They may be terminologically equivalent as in Figure 3.9, but they are different with regard to marriagability as in Figure 3.10. It is patently impossible to sustain systematic bilateral sibling exchange marriage when Ego's wife is on average 28 years younger than Ego's sister's husband.

Furthermore, using accurate parent-child generation intervals means that the grandparental descent lines in Figure 3.9 can be simplified from 8 (headings ♂♀ x A1, B2, D2, C1 in Figure 3.9) to 6 (headings $A_{1,3,5}$, and $B_{2,4,6}$ in Figure 3.10). That occurs since ego's FM and MF are approximately the same age, and are in the same patrimoiety (A) and same patriline ($_3$), while FF and MM are separated by approximately 28 years, and are in the opposite patrimoiety (B) and in different patrilines ($_{2,4}$).

Additional simplification occurs in Figure 3.10, where the two parallel diagonal dotted lines descending from upper-right to lower-left minimally represent two unnamed matrilineal descent moieties that are logically entailed by proper marriages in accordance with the

patrimoieties and the generation moieties, but are quite difficult – if not virtually impossible - to depict in Figures 3.8 and 3.9. Membership in these matrimoieties and their constituent biological matrilines characterize the organization of both Alyawarra alugeras and Warlpiri women's residences called *jilimi* (Keys 1999, Musharbash 2003, Bell 1993). Perhaps most importantly – but implicitly and unbeknownst to earlier generations of anthropologists – biological matrilines embedded in those matrimoieties are defined by mtDNA that has been passed from mother to daughter almost forever.

Figure 3.10 is a 2-dimensional representation of a 3-dimensional structure that emerges if the positions at the left and right margins of Figure 3.10 are joined in marriages. An unlabeled 3-D representation of it appears in the inset, and a fully labeled version appears in Figure 3.11. The 2-D representation in Figure 3.10 is preferable for analyzing language group exogamy (see below), while the helical structure in Figure 3.11 is preferable for depicting age biased marriage structures in small, fully closed endogamous societies. In such hypothetical endogamous societies, horizontal closure willy-nilly yields the helical structure in Figure 3.11 if people at the left and right margins systematically and uniformly marry MBD. In order for the positions on the margins to match up when they fold around in 3 dimensions, the helix must have 6 descent lines separated from each other by 60 degrees as in Figure 3.10.

When Figures 3.8 and 3.9 are interpreted as a theory model for marriages between spouses of the same age, they accurately depict some kinship terminological aspects of Kariera, Aranda and Alyawarra kinship systems, but omit or misrepresent non-terminological aspects that are parts of my data model in Figure 3.10. Since a theory model based on equal ages of spouses is not isomorphic with my enhanced data model, it fails to explain it. Occam's Razor is not the final arbiter between competing models, but it is a useful heuristic for developing and testing models. In this case, using accurate parent-child generation intervals makes Figures 3.10 and 3.11 far simpler than Figure 3.9. However, since the traditional diagrams deal primarily with kin terms and the age biased diagrams deal primarily with marriage, they are not directly competitive with each other except when the traditional diagrams are incorrectly assumed to be models of marriage with no age difference between spouses.

Allen's (1989, 1998, 2007, 2009) theoretical work on helical generations in the context of a tetradic model suggests that the emergence of bilateral cross-cousin marriage between people of approximately the same mean age may have been a logical or historical antecedent of unilateral cross-cousin marriage between people of significantly different mean ages. By analogy, the explicit or spontaneous symmetry-breaking (Brading and Castellani 2013) that is reflected in his tetradic model was followed by a less subtle form of symmetry-breaking

manifested in the emergence of age biased generations, with or without *tualcha mura*, as a major historical contribution toward enhancing order and complexity in Australian Aboriginal societies. On the other hand, the occurrence of large systematic asymmetric age relations between mates among polygynous hamadryas baboons (Kummer 1968) and some other nonhuman species may raise questions about this proposed interpretation.

Exogamy. Table 3.1 shows the actual frequency of occurrence of various kinds of marriages among the Alyawarra in 1971, organized by section membership (A1, B1, A2, B2). Descent moieties were exogamous and generation moieties were endogamous; thus men did not marry women in their own, their father's or their mother's sections; those exclusions were overdetermined by two sets of prohibitions each. Thus marriages occurred with women in one's spouse's section.

Father's section . 0 %	**Mother's section ……..** 0 %
Own section …… 0 %	**Spouse's section** ……. 100 % Biological kin ……..... 49 % MBD ……15.8 % *MMBDD …..… 6.1 % MBDDD ……. 0.9 % FZD …… 6.1 % FZDDD …… 1.8 % Incomplete data .. 18.3 % Endogamy: close classificatory kin … 28 % Exogamy: remote classificatory kin ... 23 %

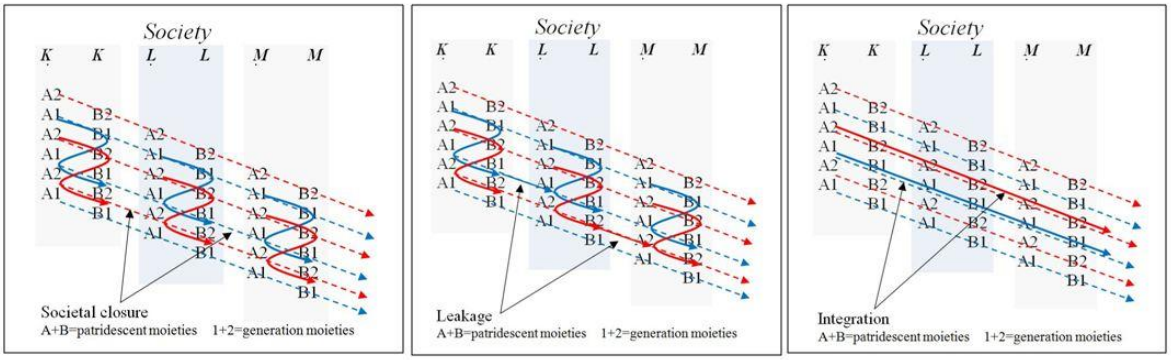
Table 3.1. Among the Alyawarra, statistical distribution of marriages between ego and his spouses by section and by genealogical distance. *MMBDD is the putative "prescribed" spouse.

Contrary to frequent arguments by Tindale, Birdsell and many others, marriage with close biological kin and exogamous marriage between language groups were quite common. Specifically, 49% of marriages were with diverse categories of biological kin, 28% of marriages were societally endogamous with close or distant classificatory kin (same language group and same or different Country), and 23% of marriages were societally exogamous with remote classificatory kin in different language groups. If Figure 3.9 is interpreted in terms of prescribed marriages, it indicates that ego's prescribed spouse was a biological MMBDD to whom ego would refer as "anowadya" both before and after their marriage, but Table 3.1 shows that members of that class accounted for only 6% of actual marriages while other biological kin accounted for 43%; i.e., MMBDD may have been the ideal member of the "anowadya" category for purposes of marriage according to the kinship terminology, but many factors contributed to minimizing the selection of MMBDD as a spouse.

Saying that marriages were *proscribed* with women in own, father's and mother's sections and permitted with a wide range of women in spouse's section is fundamentally different from saying that marriages were *prescribed* with a specific, very narrowly defined category of women such as MBD or MMBDD. Since biological MMBDD marriage accounted for only 6% of marriages while other biological kin accounted for 43%, it is at best highly misleading to say that Alyawarra marriages were prescribed with MMBDD. Unfortunately, since quantifiable data concerning kinship terms used between spouses prior to marriage is not available, I do not known which marriages were with women to whom ego referred as "anowadya" before marriage.

Nonetheless, the broad range of women who appear in spouse's section of Table 3.1 need not be referred to as "anowadya" before marriage; rather they may be referred to by diverse kin terms before marriage, but after marriage those specific women (and their biological sisters) are referred to as "anowadya". Read (2013b, p.c.) restates my empirical observation and puts it in relationship to the logic of the terminology as follows: "They preserved the logic of the terminology by marrying women who were wrong according to the kin terminology but right according to the section system, then used the term "anowadya" for spouses after marriage to bring the marriages into consistency with the kinship terminology." Thus they married correctly according to the sections and applied "anowadya" retroactively as an affinal term for "spouse". These and related issues raise serious questions about prescribed marriage, restricted exchange and elementary structures (Lévi-Strauss 1949), and support my second interpretation (above) of Figure 3.9.

Figure 3.12, another modified version of the 2-dimensional representation in Figure 3.10, is preferable for depicting marriage practices in open exogamous societies. Since language group exogamy with remote classificatory kin accounts for 22% of Alyawarra marriages and at least 15% of marriages throughout Aboriginal Australia (Dousset 2013, McConvell 2013, Sutton 2013 and Denham 2013b suggest considerably more than 15%), the chained sequence of 2-dimensional diagrams in Figure 3.12 is optimal for depicting these intermarrying chains of exogamous societies. Since Figure 3.12 deals with exogamous marriages, I use skin terms rather than kin terms as labels for positions in the three panels. Kin terms vary considerably among societies, but skin terms are somewhat less variable and are much easier to match up among neighboring societies on both sides of the section-subsection boundary.



A. Endogamous societies B. Transitional societies C. 7-21% Exogamous societies

Figure 3.12. Chains of exogamous marriages across multiple societies. Endogamous, transitional and exogamous stages in the development of a nation of age biased societies with 15% mean exogamy among neighboring societies**.**

Due to the ubiquitous 14+ year age bias, the low frequency with which Alyawarra men married MMBDD, and the 15+% language group exogamy rate in Australia, diagrams such as those in Figure 3.8 through 3.9 are less appropriate, while Figures 3.10 through 3.12 are more appropriate, for representing marriage practices among the Alyawarra, and perhaps for societies throughout Aboriginal Australia.

4. Residences

Part 4 focuses on Alyawarra residential architecture, Part 5 on camp plans, and Part 6 on the social organization of residences and camps. All of these Parts deal with variability, but they do so with minimal emphasis on historical sequences or regional diversity. Part 7 continues to explore diversity within cultural uniformity, but, following the historical precedent that I set above in my comments on climate and settlement patterns, it does so with special attention to spatial and temporal variability. Likewise, following the valuable series of essays on intracultural variability in the manufacture of Alyawarra stone tools and the construction of residences (Binford 1984, 1986; Binford and O'Connell 1984; and O'Connell 1977), I demonstrate in these four parts a broad array of highly variable Alyawarra behaviors that are entirely consistent with their cultural norms but are never stereotypical. Photographs and diagrams in Parts 4 and 5 are directly comparable to those in Memmott (2007) and Heppell (1979a).

Residence types

To recapitulate briefly, there were three types of residences in an Alyawarra camp - *anoardegan, alugera, ngundya* – and the structures within each typically included *urlya*,

waga, *dagwa*, *umbarla*, *uryungwada* and *abmura*, all of which appear in photographs in Figure 4.0 and elsewhere in this part of the paper[10].

Ordinarily an urlya was a shade made of vertical tree branches standing in holes in the sand, with a flat or sloping roof of leafy boughs; minimally it might have been nothing more than a blanket tossed over a bush to provide some slight shade; maximally it might have been a complex branch-and-bough structure surrounded by spinifex grass tussocks that served as a windbreak, and covered by a tarpaulin that served as a shelter or rain shield. Other structures such as shades, windbreaks, cooking pits and dog shelters, plus small or large open spaces separating and surrounding the structures (O'Connell 1977), accompanied an urlya to constitute a complete residence.

Children below the age of about 14 years lived in anoardegans with their parents. As such they were not relevant to many of these analyses and were omitted from most of them. Boys at about 14 years of age were initiated and reclassified as "young men" (*ardwa andidja*) who were **not** full adults and were **not** eligible to marry. They moved out of their parents' anoardegan and into ngundya, living fleetingly in camps here, there and everywhere under the guidance of widowers, their fathers and brothers, and other older men until they completed their religious training at about 28 years of age and became eligible to marry and settle down. Until they became marriageable adult men (*ardwa elgwa*), they remained "novices" who were not relevant to many of these analyses and were omitted from most of them. Girls at about 14 years of age began to menstruate and were reclassified immediately as women who were eligible to marry. They moved out of their parents' anoardegan and into an alugera where they lived until they married. As full adults, they were relevant to these analyses and were included in them.

Residential group compositions showed distinct diurnal cycles. During the hours of daylight, people often scattered from their residences to congregate at ngundya and alugera, hunt or forage, carry water to the mura, play with other children, attend ceremonies, etc.; during the hours of darkness, they generally congregated in the residences where they slept. My data here pertain to the dark half of the diurnal cycle.

[10] Among the neighboring Warlpiri in the 1990s, there were comparable **residence types**: a) alugera = *jilimi* single women's residences for widows, single women, girls and very young boys; b) ngundya = *jangkayi* single men's residences for older men, adolescent men and boys; c) anoardegan = *yupukarra* married or family residences for a man, his wife or wives and young children. Also there were comparable **residential structures**: a) urlya = *yujuku* enclosed shelter; waga = *malurnpa* bough shade and *yama-puralji* tree shade; dagwa = *yunta* windbreak (Keys 2003:65). Recommendations concerning housing design (Keys 2003:64-71, Memmott 2003:26-39) generally apply to the Alyawarra along with the Warlpiri and many others in Central Australia.

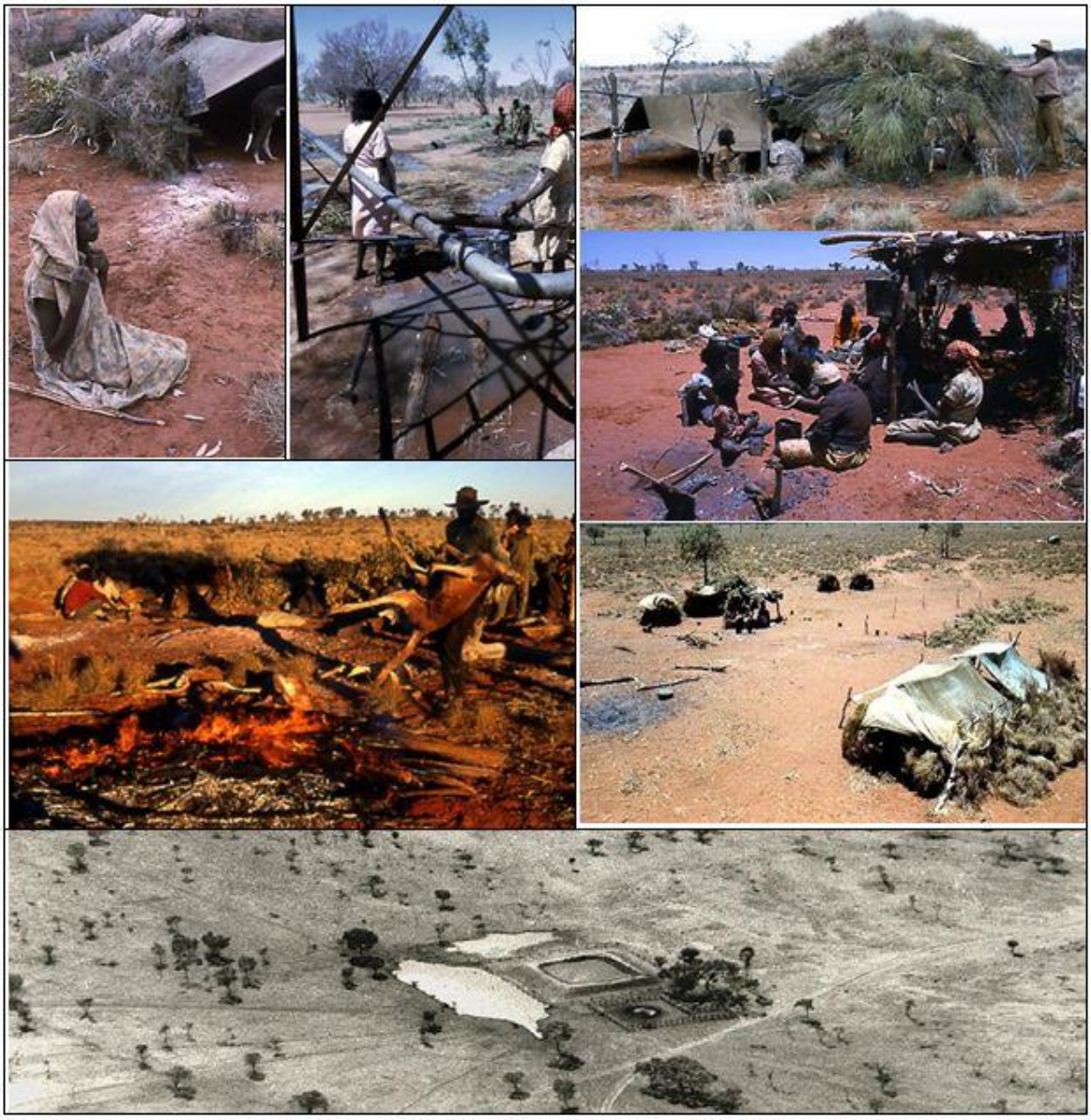


Figure 4.0. Gurlanda Camp montage, 1971.
Clockwise from top-left: Elderly woman at her wet weather *alugera*. Women and children collecting water at the bore. Nuclear family upgrading the *urlya* at their wet weather *anoardegan*. Women and children at dry weather *alugera* cooking a kangaroo in an *umbarla*. Wet weather *alugera* with integrated *urlya*, *waga* and *dagwa* for people and for hunting dogs, and a large *umbarla* for cooking bread. Aerial photograph of Ant Bore at MacDonald Downs Station, with windmill, tank and livestock enclosure. Men at *ngundya* in front of a long *dagwa* preparing to cook several kangaroo in an *umbarla* at the bottom edge of the photograph.

The following generalizations are based on census data, camp plans and residence plans for 56 residences (41 anoardegans, 8 alugeras, 7 ngundyas) at MacDonald Downs and Derry Downs Stations in 1971-72.

Anoardegan. Figure 4.1 shows an anoardegan, a substantial nuclear family residence that was a representative part of a sprawling murelgwa. It was occupied by a man and his two wives during a wet period. It had two components, a shade to the left that was especially valuable on hot sunny days, and a shelter to the right with a tarp roof and spinifex windbreaks on two sides that made it especially valuable on cold wet nights. Although the design of the urlya was traditional, the photograph shows several important items of Western origin including a shovel, water cans, cups, clothing, blankets, a tarp and a dog. The mean area occupied by 10 measured anoardegans, not including the tiny transient anoardegan in Figure 4.2, was about 2470 square feet.

The group of people who occupied or slept at a single anoardegan generally included a husband, his wife or 2 wives (rarely 3 wives), and their male and female children aged 14 years and younger. Regardless of the biological or classificatory kin relationship between spouses before their marriage, husbands and wives referred to each other with the self-reciprocal kinship reference term *anowadya* (spouse) even in the single known case of a wrong marriage. Since sororal polygyny was practiced, co-wives were either biological or classificatory Z who referred to their shared husband as *anowadya* and to each other as older Z and younger Z.

Figure 4.1. *Anoardegan* R33, 29 November 1971.
Single-family residence in warm wet weather.

Traditionally during droughts, an anoardegan might have been a free standing structure as in Figure 4.2, much less substantial than the one in Figure 4.1. As such it would have formed a minimal camp, a camp of one, highly mobile and isolated from other residences and camps until living conditions improved, not unlike the minimal camps that the Alyawarra might have built while moving from one waterhole to the next during droughts in earlier centuries.

The occupants of the small temporary *inderluga* (temporary *anoardegan*) in Figure 4.2 arrived at Gurlanda camp as visitors and remained there for only a few days before moving on to some other (unknown) camp. Their residence consisted of a tarp and a blanket draped over a large bush, and assorted blankets and other fabrics spread on the ground in the shade provided by the draped bush. Whether this structure qualified terminologically as an *urlya* is unknown to me, but it did the same job during their brief visit.

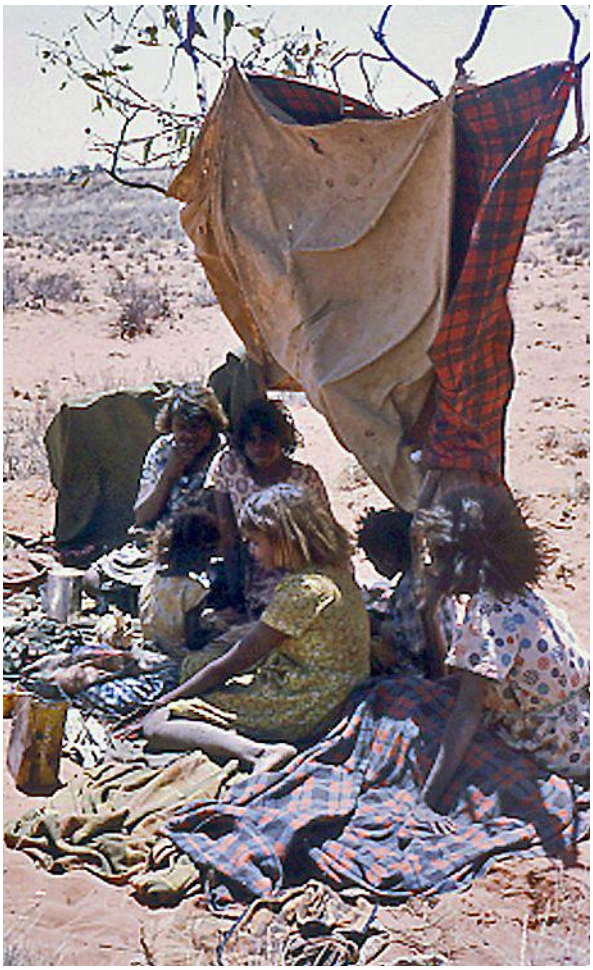


Figure 4.2. *Inderluga* R44, 14 September 1971.
Free-standing temporary single-family residence in cool dry weather.

During its isolation, such an inderluga might have been accompanied by an affiliated alugera or ngundya for unmarried adult children who still lived near their parents. The mean age difference of W<H=14 years, combined with polygyny, meant that widows were numerous and widowers were rare. Since widows were numerous, an isolated inderluga might have been accompanied by an alugera for a widow, typically the mother of the wife; since widowers were rare, it would have been unusual but not impossible for an inderluga to be accompanied by an ngundya for a widower. In 1971-72, I saw very few structures such as the one in Figure 4.2, and those were used only by transient families.

Alugera. Figures 4.3 through 4.5 depict three large alugeras that were components of a murelgwa. A cluster of anoardegans was affiliated with each alugera, but the overall separation of residences within the camp meant that the anoardegans were in the middle distance in Figure 4.3, and outside the scope of the photographs in Figure 4.4 and 4.5.

Figures 4.3 and 4.4 show these alugera in cool weather as indicated by the windbreaks; Figure 4.3 shows dry conditions as indicated by the absence of tarps; Figure 4.4 shows wet conditions as indicated by the presence of multiple tarps.

In Figure 4.3, the complex structure that occupied the entire foreground had two major areas. In the lower left was the cooking and daytime living area with shades and a couple of small windbreaks. To the right in the middle distance was a much larger windbreak that protected a sleeping area. Other visible structures included three affiliated *anoardegans* in the left distance and the *ngundya* (with cars) around the tree to the right of center. The area occupied by alugera R24 was approximately 3800 square feet.

In Figure 4.4, the architecture was more complex than in Figure 4.3. In the right foreground was an extended shelter with tarp roof and spinifex walls that could withstand substantial rainfall. Just beyond it to the right was a long windbreak with poles that supported additional tarps when needed on rainy nights, and burned-out warming fires near the windbreak. At the extreme left were a cooking pit for kangaroo and damper (bread), and tools (shovels and a pan) used in cooking. The cluster of structures near the tree included a shade from which containers hung. In addition the *alugera* contained four shelters for large dogs that were used to hunt kangaroos during extended and severe wet periods; all were protected by spinifex walls and roofs, and two were covered with tarps. The area occupied by alugera R21 was approximately 4700 square feet.

In Figures 4.3 and 4.4, the open space in the middle of the residence was the main activity area for the large number of women and children who used the *alugera* every day.

One or a few widows and one or a few unmarried young women generally were the full-time permanent residents of an alugera. Also all of the other women and children under age 15 who lived in the mura spent much of each day at the alugera, as shown in Figure 4.5. Women and children visiting the camp from other mura and murelgwa also stayed there in numbers ranging from 0 to as many as 15 or 20. Generally speaking the women who congregated at an alugera tended to be proper or classificatory sisters of full-time permanent residents or daughters of those residents. The generic term for women who belonged to, were members of, or congregated at an alugera was *alugera-arinya.* Seeing a kangaroo cooking in a pit at an alugera was a common occurrence among the Alyawarra, *contra* Binford (1987:473) as quoted by Memmott (2007:42).

Figure 4.3. *Alugera* R24, 14 September 1971. Single women's residence in cool dry weather.

Figure 4.4. *Alugera* R21, 29 October 1971. Single women's residence in cool wet weather (appears in Memmott 2007: Plate 11).

Figure 4.5. *Alugera* R23, 29 October 1971. Large group of women and children. Kangaroo cooking in foreground.

Ngundya. Figure 4.6a depicts the ngundya in a large murelgwa during cold, wet weather. With an occupied area of approximately 4550 square feet, its main features included a 60-foot long windbreak to the left of the sleeping depressions that provided protection for a large number of young and old men on cold nights, a line of *abmura yeberda* (personal sleeping depressions) separated by *yemenda* (ashes) accumulated from *uryungwada* (warming fires), and several *arula* (upright forked poles = trees) to support a tarp in case of rain. It also contained the remains of an *umbarla* (kangaroo cooking pit) and a lot of open space.

One or a few widowers generally were the full-time permanent residents of a specific ngundya, and one or a few initiated, unmarried young men may have lived with them more-or-less permanently as well. Also all of the married men who lived in the camp spent much of each day at the ngundya. Since the ngundya was a general-purpose men's meeting place and temporary residence, adult male visitors to the camp would reside there briefly in numbers ranging from 0 to as many as 30 or 40. Since all initiated men either lived or visited there, regardless of ages, kin relations or language group memberships, there generally were no detectable kinship patterns in these relations.

Figure 4.6a. Part of *Ngundya* R11, 6 June 1971.
A senior single men's residence in cool dry weather.

Figure 4.6b. Ngundya R11, 29 Nov 1971.
A young men's ngundya near R11 in warm wet weather. Young men are playing cards.

Figure 4.6b is a shelter built specifically by and for young men to use while playing cards during an especially miserable spell of wet weather. Depending upon its location in a camp, such a "junior" ngundya might be seen as an extension of the main ngundya or as a separate free-standing entity (O'Connell 1977). The distinction between the two ngundyas, if a

second one exists, seems to be based on age, not on genealogies[11]: i.e., the second is used by ardwa andidja while the first is used primarily by older men.

Figure 4.7 is an *agiewa*, a special kind of restricted access ngundya used for "men's business", located perhaps 100 meters outside of the murelgwa.

Figure 4.7. Agiewa. A restricted access area for men's ceremonial activities, August 1971.

Exceptions to generalizations. Among permanent residents of an anoardegan, some of the children might stay overnight at the alugera with other women and children; sometimes a husband or wife might be away for 1 or several nights; etc. But deviations from the standard list of residents were almost always due to the absence of one or more of the optimal group. Although people who resided there might have been absent now and then, I never observed or heard of even one adult visitor spending a night at someone else's anoardegan, and *contra* Binford (1987:474 quoted by Memmott 2007:34), I *never* saw a man at another man's anoardegan during the hours of daylight or darkness. Adult male visitors confined their activities to the ngundya or to ceremonial areas outside the camp, adult female visitors confined their activities to an alugera, and only very rarely would a child spend a night at an anoardegan with MZ and parallel cousins. Perhaps the strict exclusion of visitors from one's residence at Gurlanda was symptomatic of its "purity", in contrast to visiting between residences that occurred at Bendaijerum (O'Connell 1987:78).

[11] See Stoll et al (1979:124) and others concerning the construction of two *inkintja* (Western Aranda equivalent of ngundya) based on avoidance relations between men living in a murelgwa.

Some marriageable men and women who were not married nevertheless lived indefinitely as residents of ngundya or alugera. I was told that this was because there were no people in the right kin relationships for them to marry. Strictly speaking that was true, but the option to marry various close, distant and remote classificatory kin suggests that there may have been other reasons as well. One woman who lived at Gurlanda became paralyzed in her legs before marriage; she never married but remained permanently at her alugera. One man who briefly visited Gurlanda and stayed at the ngundya showed typical visible symptoms of Down Syndrome; he was ineligible for initiation, therefore would never marry. One elderly married man who lived at Gurlanda and had several adult children showed visible symptoms of senile dementia, but he lived with his elderly wife and virtually everyone in the murelgwa took care of him. One couple, she an Alyawarra, he an Aranda, had made a wrong marriage but both were accepted as Alyawarra. In other words, people had normal human problems and other people took care of them. The mantra "we take care of them" pertained to people with special needs, as well as to those who confronted birth, initiation, marriage, illness and death.

There was no set design, size or arrangement of the structures and open spaces in any of the three types of traditional residences, or the relative positions of them within a camp (see Gendered Space in Keys 1999:18-19, and her sources). Rather a residence as a whole was an enormously flexible entity. It was quick and easy to construct using immediately available materials and virtually no tools in keeping with a nomadic lifestyle; it was immediately adaptable to short and long term variations in a difficult climate; and it was characterized by good visibility, excellent security, easy communications and personal privacy in open, public settings. With many millennia of experience in using such residences, the Alyawarra were experts in building what worked best for their purposes (Heppell 1979b; Stoll, Ziersch and Schmaal 1979).

Comparisons

Figure 4.8 shows ngundya and anoardegan from the neighboring Aranda (Spencer and Gillen 1899:13 and 17) at the end of the 19th century. They were strikingly similar to the same kinds of structures among the Alyawarra at MacDonald Downs in 1971**.** They almost certainly were photographed at large semi-sedentary murelgwa as depicted in Figures 5.3 – 5.5. Indeed there were differences between urlya among the Alyawarra in 1971 and among the Aranda in 1899, but 70 years of "upgrading" of the architecture yielded only the addition of tarps and a modest increase in size associated primarily with a decline in nomadism as suggested by the photograph of the windmill in Figure 4.0.

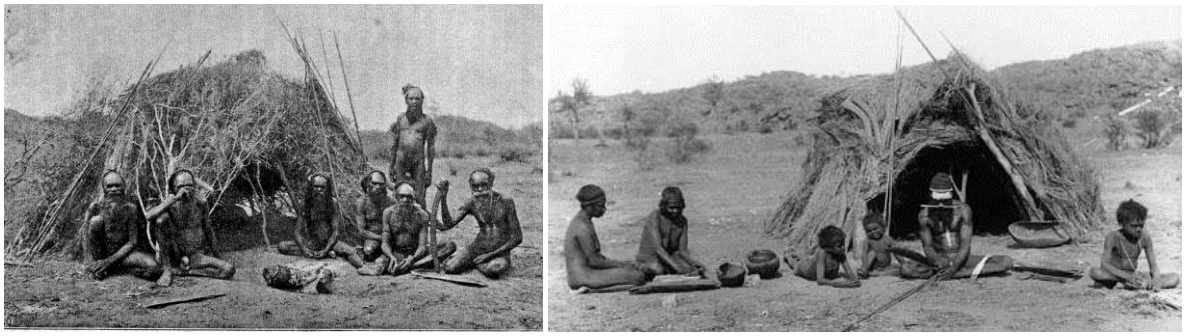


Figure 4.8. Ngundya (left) and anoardegan (right) among Aranda at Alice Springs 1896.
(Spencer and Gillen 1899:13 and 17; also see Memmott 2007:20-21 and 46.)

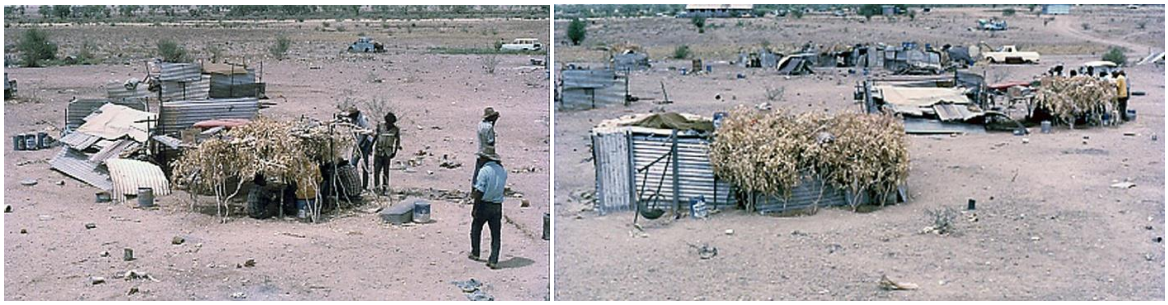


Figure 4.9. Tumbledown residences at Lake Nash Station 1972.

Figure 4.9 shows that residences among the Alyawarra at Lake Nash Station in 1971 were unlike those at MacDonald Downs. Although I have no plans of camps outside the cluster where I worked at MacDonald and Derry Downs, the photographs in Figure 4.9 provide a striking contrast with those in Figures 4.1 through 4.6. Residences at Gurlanda Camp featured traditional, widely separated settings in spinifex grasslands, while Lake Nash Station featured tumbledown sheds built on top of each other in a desolate wasteland. Living conditions such as those at Lake Nash were common on cattle stations in the region in 1971. O'Connell (1977:104-105) shows three residences at Bendaijerem Camp that incorporated metal sheets in 1974, but no residences at Gurlanda Camp had metal components in 1971. It is not surprising that the camps where I worked had a reputation for being good – i.e., traditional - places to live.

Residences among the Alyawarra at Warrabri Settlement in 1971 are not shown here for I was refused permission to use my camera during my brief visit to Warrabri. For the most part, the Alyawarra would not live in government housing, but continued to live in traditional residences as far as possible from the center of the settlement.

Here I reiterate Bell's (1993:88) statement concerning the Alyawarra living at Warrabri Settlement in 1976-82:

> "The Alyawarra camp [on the east side of the settlement] is as far as possible from the settlement core. … If one tried hard and always faced the east, it would be almost possible to collect sufficient data to write an ethnography of the "traditional" life of the Alyawarra …"

For the Alyawarra, looking eastward from Warrabri was akin to looking backward in time, away from the desolate present, toward traditional Alyawarra territory and values embodied in the camps at MacDonald Downs and Derry Downs.

All things considered, residences of the type used by the Aranda in 1899 had persisted among the Alyawarra at MacDonald and Derry Downs when I worked there in 1971, with none of the squalor associated with locations such as Lake Nash and none of the forced assimilation associated with Warrabri. I conclude that the minimal differences between Alyawarra residences in 1899 and 1971 are evidence for the persistence and continuity of traditional Alyawarra society.

5. Communities

Distribution of camps

Figure 5.1 shows a composite view of topographic features plus White Australian and Aboriginal cultural features in the Sandover-Bundey River Catchment Basin that included much of Alyawarra territory.

Topographic features included 3 generally dry water courses. Several times in 1971-72, flashfloods from thunderstorms along the north slope of the MacDonnell Ranges flowed down the Sandover or Bundey Rivers, and several inches of widespread rain over a period of 2+ weeks resulted in a more substantial flow in the Bundey for several days near the end of my fieldwork. Otherwise, the channels were dry even though Australia was experiencing a La Niña event.

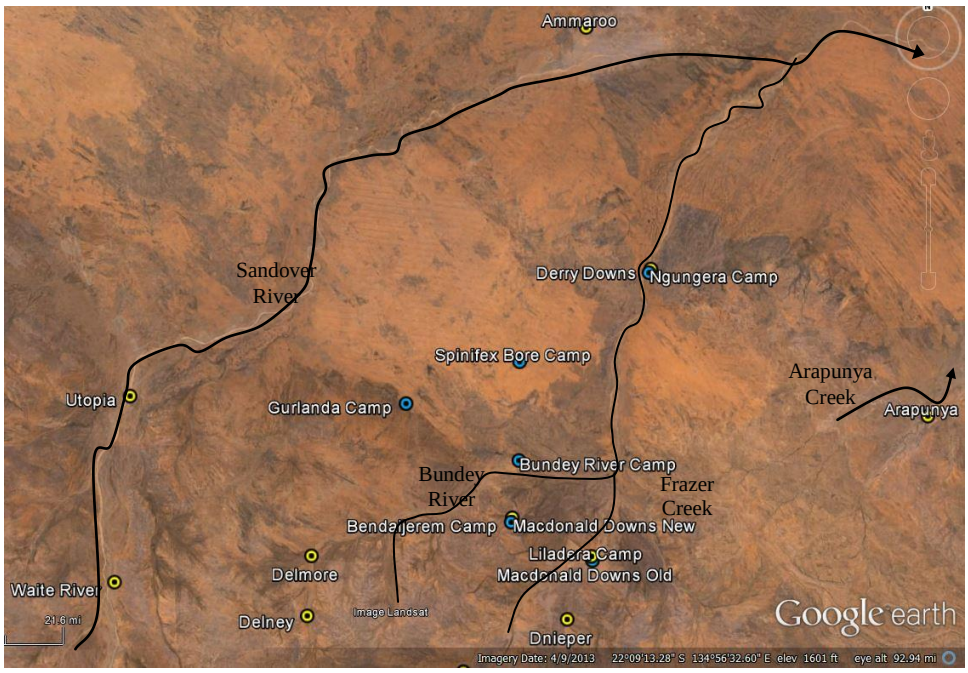


Figure 5.1. Composite map of the Sandover-Bundey River Catchment Basin.
Includes rivers and creeks, pastoral properties, and Alyawarra camps included in my research.
Sandover River, Bundey River with Frazer Creek merging, and Arapunya Creek all flow to the northeast.

White Australian cultural features included pastoral properties, and Australian Aboriginal cultural features include the camps where I worked. Here I use camp names only, but my codes for camps and their locations used below have three parts: a) **name**, such as Gurlanda, b) **location** relative to water supply, such as GurlandaA north of Johnno's Bore, Gurlanda B southwest of that bore, and GirlandaC southeast of the bore; and c) the **sequence number** of my mappings of a camp, such as GurlandaB1, Gurlanda B2, GurlandaB3, etc.

Camps abandoned *before* I began my research included Spinifex Bore, Bundey River and GurlandaA. Although these camps had been abandoned, the structures were in good condition when I arrived and the former residents of each structure were well known at that time. Camps occupied *during* my research included GurlandaB, GurlandaC, Bendaijerem, Liladera and Ngungera, spread over a distance of about 80 road kilometers. The locations were adjacent to Dreaming sites, each camp was referred to by the name of its neighboring site, and each had a permanent water supply provided by a bore. Due to deaths in the local population, the camps at Gurlanda, Bendaijerem and Ngungera were relocated near their water supplies several times, and Liladera camp was abandoned. "Stock Camp" was a proxy for temporary or mobile camps occupied by men when they worked at various jobs associated with the operation of the cattle station; it does not appear in Figure 5.1. In 1971

the camps were by no means sedentary as were nearby homesteads, but remained semi-sedentary as they had been traditionally on a time scale measurable in months.

Camp types and settlement patterns

The three types of camps that I discussed in Part 4 included inderluga, mura and murelgwa. Here I discuss the layout of residences within these camps in the context of ever changing climatic conditions.

During droughts and floods, food and water supplies became extremely limited, and each residence was an independent, maximally dispersed, isolated social entity as described in Part 4 and illustrated in Figure 4.2. Perhaps under the hardest of traditional hard times, in the most extended droughts and floods, this free standing *inderluga / urlya / anoardegan* configuration was a standard option, with or without an affiliated ngundya or alugera for unmarried adults. Each isolated anoardegan functioning as a minimal camp generally would have had a population of 2-4 adults plus their young children, and affiliated single-sex residences (if any) would have had 1-4 adult residents. Thus, as I understand it, minimal camps rarely would have had more than 10 adult residents.

I did not see these isolated residences in use in 1971-72 except by transient visitors. On the other hand, Tindale, for example, reported seeing many drought camps in the Western Desert in the 1930s. He classified them as a) "peripheral refuges shared by more than one people", and b) central refuges "shared with no others, to which retreat was possible but from which there was no likelihood of escape" (until relief rains came) (Tindale 1974:68). Since his descriptions and mine are not directly comparable, I do not know whether his comments apply to the Alyawarra.

During sustainable good times with adequate water and food, populations spread out across the desert to live in *mura*. They were scattered, nomadic, somewhat isolated and self-contained multi-family camps having 1 ngundya, 1 alugera, as many as 5 or 6 anoardegans, and typical populations ranging from 10 to 30 people.

During unsustainable rich times when food and water were plentiful and concentrated enough to support initiations and increase activities, *murelgwa* formed. They had 1 or sometimes multiple ngundya, perhaps 5 or more alugera, and a large number of anoardegans, with populations ranging from several tens to several hundreds.

By 1971, maximally dispersed residences such as those used in droughts and floods were things of the past. However the contrast between dispersed mura and aggregated murelgwa persisted unambiguously into the 1970s and appears clearly in the 1971 camp plans. The camp plans introduced here and their associated data represent only two of the eighteen encampments for which equivalent digitized plans exist in the Alyawarra Ethnographic Archive and in the Alyawarra Interactive Map; i.e., the following Figures are a small sample of a much larger similarly documented Alyawarra universe.

R02 My tent	White square: the tent where I lived at Gurlanda camp
R10 through R19 *ngundya*	Blue squares: single men's residences for widowers, unmarried initiated young men age 14 and older, married men whose wives are away temporarily, married men who visit the camp without their wives.
R20 through R29 ***alugera***	Pink squares: single women's residences for widows, unmarried women age 14 and older, married women whose husbands are away temporarily, married women who visit the camp without their husbands.
R31 through R99 *anoardegan*	Yellow squares: monogamous or polygynous family residences for married people with their pre-teen children

Table 5.1. Summary key to residence types, numerical codes and color codes used in subsequent camp plans.

Table 5.1 is a key that defines residence types within camps, and numerical and color codes used to identify them in the following Figures and Tables.

Figure 5.2 depicts mura Liladera, a small, dispersed camp with 6 residential structures forming a compact, regular cluster beside a dry riverbed. Figure 5.3 depicts murelgwa Gurlanda, a much larger, aggregated camp with 31 residential structures located in sandhill country (see O'Connell 1987 for many complementary details from an archaeological perspective).

Dispersed mura. Mura Liladera in Figure 5.2 was a small camp situated on the east bank of Fraser Creek, a tributary of the Bundey River, near the original MacDonald Downs homestead that was built in the 1920s. With 4 anoardegans, 1 alugera and 1 ngundya, the compact camp occupied an area of about 500 feet northeast-to-southwest by 300 feet northwest-to-southeast =15,000 square feet = about 0.35 acre.

The camp's 14 adult residents included 2 men who had 1 wife each, and 2 who had 2 wives each. No men actually resided at the blue ngundya (R19). Rather, each man resided in a yellow anoardegan with his family, but all of the men congregated at the ngundya each day. The 6 wives, who resided with their husbands in the four yellow anoardegans, congregated at

the pink alugera (R26) each day. In addition, 4 unmarried women were full time permanent residents of the alugera. I explore the social organization of this mura in greater detail in Part 6.

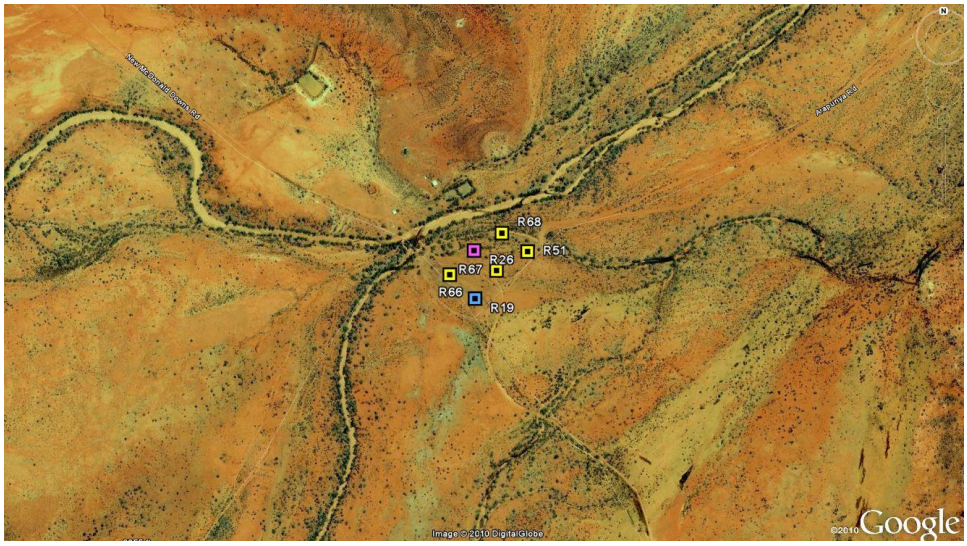


Figure 5.2. Plan of *mura* Liladera, a dispersed small camp, 1 July 1971.
1 *ngundya* R19, 1 *alugera* R26, 4 *anoardegans* R51, R66-R68.

Aggregated murelgwa. Figure 5.3 is a precise but minimally annotated plan of murelgwa Gurlanda that is directly comparable with the plan of mura Liladera above. Both appear from an eye altitude of 6000 feet. Murelgwa Gurlanda had 31 residences and 83 adult residents who were present on the first day of the initiation of a series of young men. As the initiations continued, the camp reached a maximum population of 208 including children. With a population of 83 adults, this Figure was vastly more complex than the previous one for mura Liladera, but was much smaller than it was at its maximum size. Nevertheless it was large enough for illustrative and didactic purposes here. The camp, sprawling over a sand hill, occupied an area of about 2300 feet northeast-to-southwest by 800 feet northwest-to-southeast = 1,840,000 square feet = about 42 acres. That means that the residences were situated on an average of about 1.35 acres each. Thus it is not surprising that the residences depicted in Figures 4.3.and 4.4 appear to be widely dispersed.

When multiple mura coalesced to form a single murelgwa, the constituent muras neither maintained complete autonomy nor formed a single amorphous whole. Rather each retained enough of its own identity, based primarily on ties among women, that I use the English term *neighborhood* (Memmott 2007:120 ff. calls them "sub-camps" or "sub-clusters") to denote

mura-based clusters of residences within murelgwa. Men's ties in a murelgwa were more ambiguous.

Figure 5.4 is an air photo of murelgwa Gurlanda several months after I made the plan in Figure 5.3. It shows the distribution of residences and the pathways that interconnect them. The two large open areas in the lower-right quadrant were associated with two alugeras; the one with motor vehicles in the upper-left quadrant was associated with the ngundya. The remaining structures were three other alugeras, numerous anoardegans and my tent.

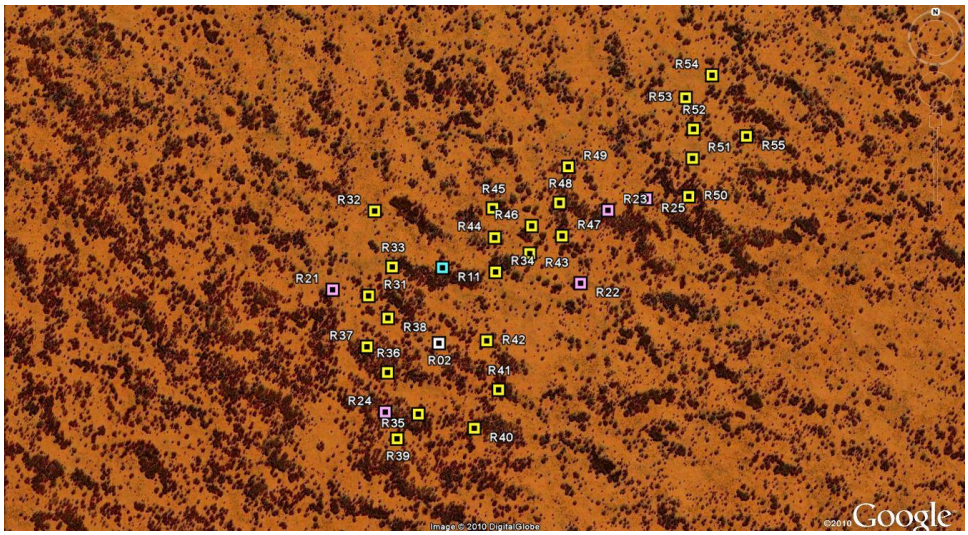


Figure 5.3. Plan of *murelgwa* GurlandaB3, 14 September 1971, a large aggregated camp.
1 *ngundya* R11, *5 alugera* R21-25, 25 *anoardegan* R31-55, my tent R02.
Notice that the segmentation of the murelgwa into its constituent mura is not visible in this image.

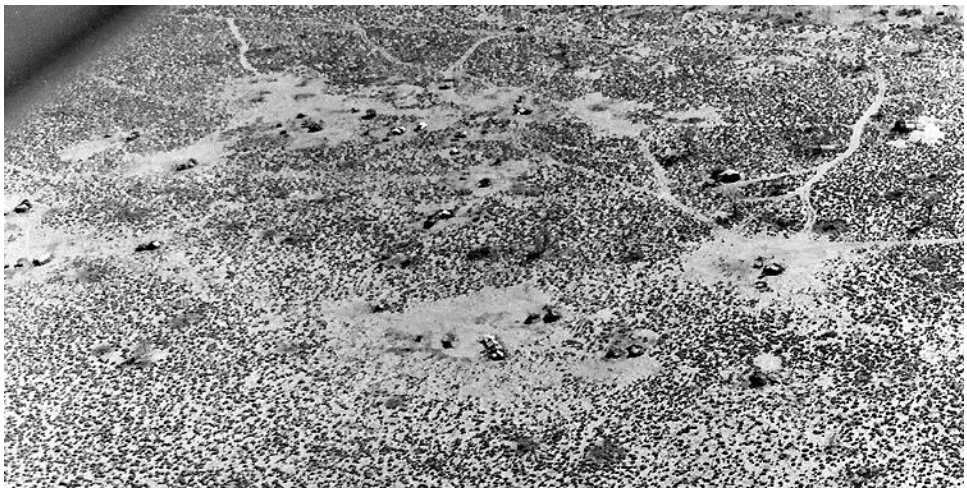


Figure 5.4. Air photo of a part of *murelgwa* Gurlanda showing distribution of residences and paths.
Paths form a sociogram in the sand. Photograph by Vic Urban, Alice Spring, NT, 19 March 1972.

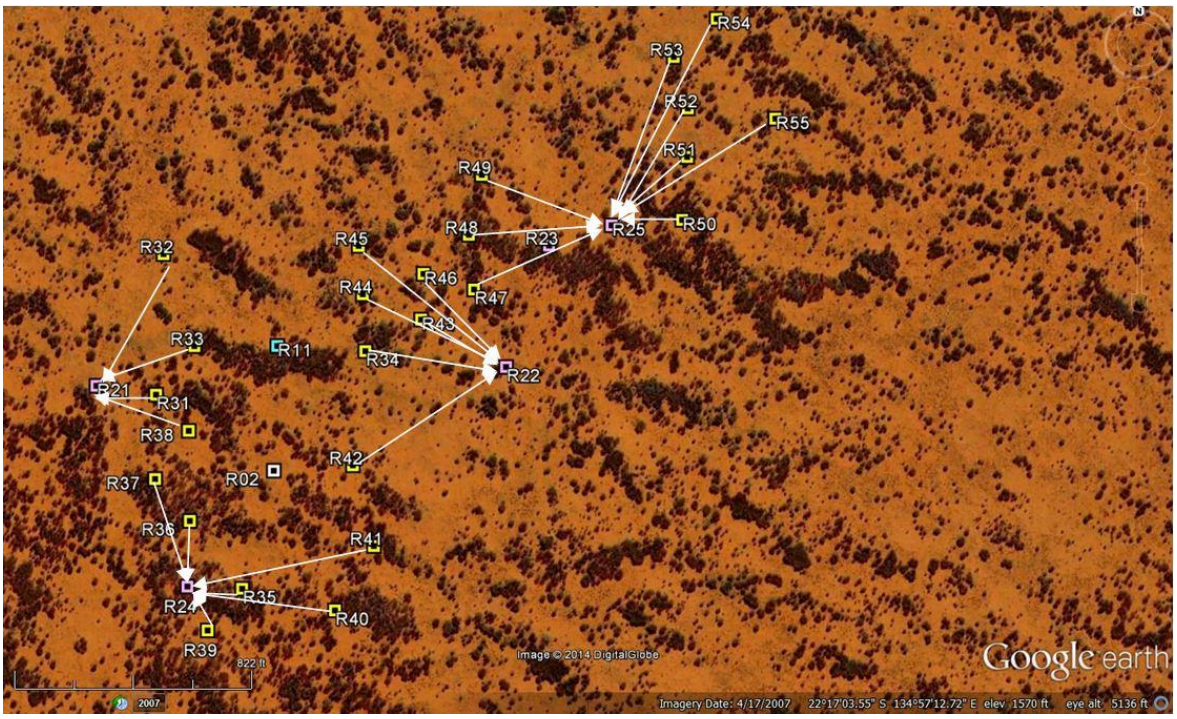


Figure 5.5. GurlandaB3, 14 September 1971, camp layout and composition of neighborhoods.

Figure 5.5 is an annotated plan showing how several mura came together to form the murelgwa. Neighborhood segmentation, invisible in Figure 5.3 but clearly visible in Figure 5.5, was based on Figure 5.3, plus the air photo in Figure 5.4 showing paths through spinifex and sand that form literal, physical sociograms (Kummer 1968) of relational networks among residences, plus extensive genealogies and kinship term applications, plus my own observations of behavior in the camp. This Figure is directly comparable with those for aggregated camps in several other societies depicted by Memmott (2007, Chapter 5, pp. 112-129).

When muras were dispersed, each had one ngundya, but when they were aggregated they typically merged their separate ngundyas into a single social and physical structure such as R11, a sort of super-ngundya and "men's meeting house", used by all men in the murelgwa. Also when the muras were dispersed, each had one alugera, but when they were aggregated to form a murelgwa, the alugeras consistently retained their separate identities within their neighborhoods (R21-R25). Each anoardegan was affiliated with an alugera, usually but not

always on the basis of matridescent or matrifiliation, and it retained that affiliation in both dispersed and aggregated contexts.

Having lived in the camp for 11 months, I know that alugera-centered neighborhoods existed, that women who congregated at each alugera lived close to the one that they favored, and that R23 stood alone without its own adjacent neighborhood. I used this knowledge to divide the camp into neighborhoods. A preliminary version of the final neighborhood pattern that appears in Figure 5.5 resulted from this process.

Residential group census data (Denham 2014a) clarified and confirmed the composition of alugera-centered neighborhoods on the basis of censuses of everyone present at each alugera during observation sessions. These data resolved two ambiguities in Figure 5.5; viz., in terms of spatial relations alone, R42 might have been affiliated with either R22 or R24, and R47 might have been affiliated with either R22 or R25. When spatial, genealogical and behavioral relations are considered together, it is clear that R42 is affiliated with R22 and R47 is affiliated with R25.

Homelands and Outstations

Figure 5.6 shows the distribution of Homelands and Outstations established in and near traditional Alyawarra territory following the Aboriginal Land Claims settlements that began in 1976 and continued into the 21st century. These communities were established after my research ended, and I mention them here to expand the historical context into the future. They are concentrated in the Sandover-Bundy basin, but are distributed much more broadly. My objective is neither to praise nor to condemn the changes that have occurred, but simply to illustrate them minimally.

Figure 5.7 is a satellite photograph that shows the plan of the Ampilatwatja community in Aherrenge Country with its distinctly White Australian appearance. I include a Google Earth image of it from 2012 as evidence of the kinds of changes that have recently affected some aspects of traditional lives in the region but were absent from Alyawarra residences and camps in 1971.The streets, houses and runway are indicative of massive changes that stand in sharp contrast to the traditional Alyawarra camps shown above.

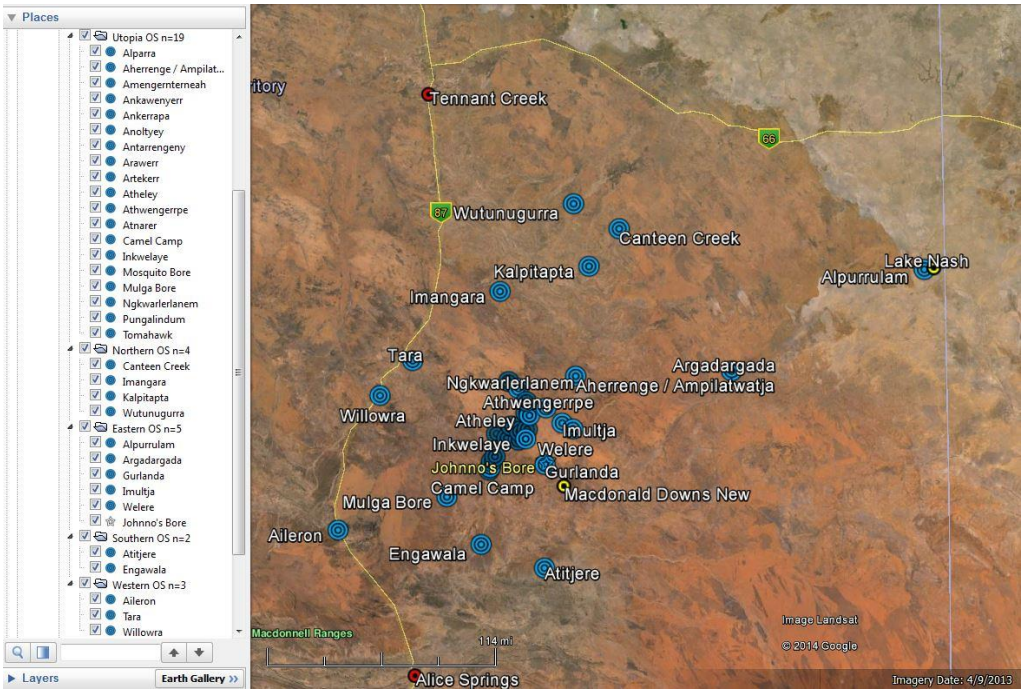


Figure 5.6. Alyawarra homelands and outstations established between 1976 and 2011.

Figure 5.7. Ampilatwatja from Google Earth 2012.

6. Synchronic group compositions

Here I examine detailed social relations among residents of mura Liladera and murelgwa Gurlanda, exploring the various principles that may underlie the formation of Memmott's (2007 Chapter 5) "clusters and sub-clusters". I focus primarily on descent and generation moieties; sections and subsections; Dreamings and Countries both sociological and topographical; and genealogies, kin types and kinship terminologies, using numerical or quantitative data concerning residential group compositions – "who lives with you?" - within the camps at MacDonald and Derry Downs in 1971.

This part of the paper contains a great deal of highly detailed data that you may want to gloss over on first reading. However, since the argument derives directly from the data, the data is by no means expendable. I seek to avoid generalities, vague or otherwise, and focus on the minutiae.

Ethnographers and theoreticians concerned with Australian Aboriginal residential groups - by that or various other names - traditionally have focused on groups similar to the mura with its population approximating the "magic number" 25 (Binford et al. 1968), but quantifiable data traditionally have not been used to support the belief that it is somehow special. Although that group has distinctive features that make it large enough to be interesting and small enough to be manageable, giving it unique consideration on those grounds is arbitrary and unfounded. The two continua – residences from smallest anoardegan to largest ngundya and alugera, and camps from most isolated anoardegan or inderluga to largest aggregated murelgwa – are the proper units of analysis, and one arbitrarily selected point in that complex space is not meaningful. I deal with various points separately for analytical purposes but reject the notion that any one point is more important than others.

As Memmott (2014 p.c.) rightly notes, the process by which a mura forms may be interpreted in two rather different ways. On the one hand, an alugera may be thought to attach itself to a cluster of married couples whose male members are closely related to each other thereby forming a patrifocal mura in a manner reminiscent of the classical horde. On the other hand, a cluster of married couples whose female members are closely related to each other may be thought to coalesce or aggregate around a single alugera, often occupied by their mother, thereby forming a matrifocal mura. Perhaps more importantly, both processes can occur concurrently, thereby yielding quite complex overlapping patterns as described by Stoll et al. (1979:130) at Hermannsburg. These issues are addressed in various ways in the following case studies.

The social organization of an isolated single-family residence is equivalent to the internal social organization of each single-family residence within a mura or murelgwa. Since I deal with this topic in the context of dispersed and aggregated camps, I do not deal with it under a separate heading here.

Extended family residences. Although a mura is a dispersed camp ordinarily consisting of one ngundya, one alugera and several anoardegans, there are two rather different ways to conceptualize how the families and residences within a mura are concatenated socially.

- If the residences that constitute a mura disperse separately, coalesce repeatedly with each other to form mura that contain the same interrelated people with historical continuity and depth, and sometimes aggregate with other mura to form murelgwa, I view that mura as an extended family residence; i.e., as closely affiliated families residing together systematically.
- If the people who live in a mura are only remotely related to each other and are likely to join other residences at random to form other mura at other times, I view that mura as a casual group; i.e., as loosely affiliated families residing together opportunistically.

Regardless of whether a mura was an extended family or a casual group, the ngundya, the alugera and the affiliated cluster of anoardegans were analogous to "rooms" or "apartments" in a single structure, each separated from the others by more or less empty space. The alugera was the "women's meeting room" with cooking facilities for baking bread and roasting kangaroo; the ngundya was the "men's meeting room" with cooking facilities for roasting kangaroo; and the anoardegans were "nuclear family bedrooms" with limited cooking facilities. During the day, men generally congregated at the ngundya while women and juvenile children congregated at the alugera. At night husbands, wives and juvenile children generally congregated at their respective anoardegans, unmarried women remained at the alugera, and unmarried men remained at the ngundya. The uses of the "rooms" were the same, but the persistent and complex relations within an extended family household were quite different from the transient and simple relations within a loosely affiliated casual group. Traditional mura at MacDonald Downs generally approximated extended family households, but since I have no data from places such as Warrabri Settlement and Lake Nash station, I can only suspect – but cannot demonstrate - that somewhat less traditional mura at such places may have approximated casual groups.

Social organization of mura Liladera

Here I demonstrate various ways to analyze the composition of mura Liladera as depicted in Figure 5.2, a dispersed camp of 14 adults that operates as an extended family household. I then use this demonstration as the basis for discussing residential group compositions more broadly.

Table 6.1 is a tabulation of residential group compositions at mura Liladera. Variables and values are defined in the key. Each shaded group of rows corresponds to the people who lived in a residence that is numbered in Col.1 (R26, R51, R66, R67, R68) in the order in which I identified residences. Within each residence, men are listed first and their wives are listed below them.

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
R#(=5)	Sex	ID#(=14)	YoB	MarStat	Lang1	Lang2	Moiety	Section	GenLevel	Ctry	Fa	Mo	Sp1	Sp2
26	2	197	1941	1	10	3	KB	B	G-1	41	330	160		
26	2	199	1944	1	10	3	KB	B	G-1	41	330	160		
26	2	215	1951	1	10	0	KB	K	G-2	41	28	382		
26	2	216	1952	1	1	0	KB	B	G-1	58	10	160		
51	1	40	1940	2	1	0	KB	K	G-2	15	324	157	195	211
51	2	195	1950	2	1	0	PN	P	G-2	38	15	176	40	
51	2	211	1950	2	1	0	PN	P	G-2	42	29	405	40	
66	1	24	1929	2	3	0	PN	N	G-1	62	379	381	177	
66	2	177	1930	2	10	3	KB	B	G-1	41	330	160	24	
67	1	10	1908	2	1	0	KB	K	G.0	58	303	362	160	
67	2	160	1912	2	1	0	PN	P	G.0	43	342	398	330	10
68	1	15	1916	2	1	0	PN	N	G-1	38	351	317	171	176
68	2	171	1925	2	1	0	KB	B	G-1	70	395	393	15	
68	2	176	1930	2	1	0	KB	B	G-1	58	1225	372	15	

Key to Table 6.1

Col. 1: Residence numbers
Col. 2: Sex. 1 = male, 2 = female
Col. 3: Identification number (ID#)
Col. 4: Year of Birth
Col. 5: Marital status. 1 = unmarried, 2 = married
Col. 6-7: Primary and secondary languages spoken
Col. 8: Patrimoiety. KB = Kamara, Burla ; PN = Pityara, Ngwariya
Col. 9: Section. K = Kamara, P = Pityara, B = Burla, N = Ngwariya
Col. 10: Generation level within generation moieties (see text)
Col. 11: Country code
Col. 12-15: ID# of father, mother, spouse1 and spouse2

Table 6.1. Tabulation of residential group compositions at mura Liladera, alugera R26, 1 July 1971
The ngundya does not appear here since nobody lived in it.

The Table shows that the population of mura Liladera consisted of 14 adults including 4 men and 10 women. Since unmarried women were full time permanent residents of alugeras while young men travel ephemerally but did not reside permanently at ngundyas, the sharply unequal number of men and women at mura Liladera was not exceptional.

Polygyny. The 4 men with a total of 6 wives resided in the 4 yellow anoardegans. The 4 women who resided in the pink alugera had never married. The 6 married women who resided in anoardegans congregated daily at the alugera with the unmarried women. Since nobody resided in the ngundya it does not appear in the Table, but all of the men congregated there daily.

Of the 4 married men, 2 had one wife each while the others had 2 wives each. ♂015's wives ♀171 and ♀176 were distant classificatory Z who were not members of the same Country, but ♂040's wives ♀195 and ♀211 were close classificatory Z: they belong to the same Country and ♀195's M ♀176 and 211's M ♀405 were full-Z. Sororal polygyny encompassing both biological and classificatory sisters was prevalent. The polygyny rate of 1.5 wives per married man at Liladera was a bit higher than the average of 1.33 wives per married man for the research population as a whole.

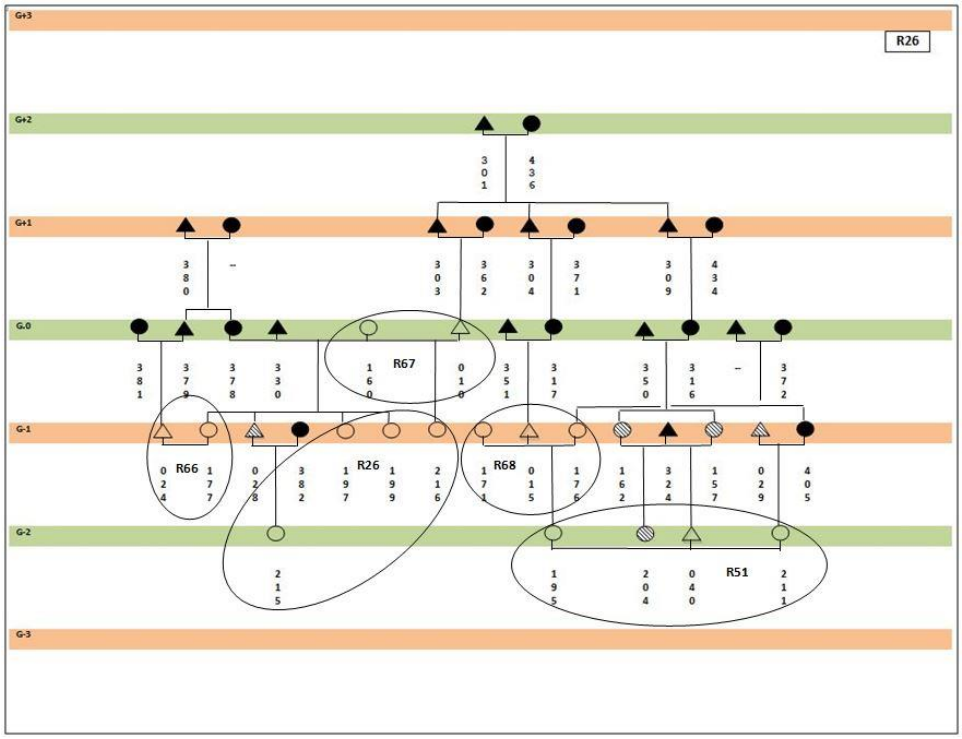
Countries. There were no close genealogical relations among the men who were members of 4 different Countries (C15, C38, C58, C62). Liladera was located near a Dreaming site in Country C62. The only adult member of C62 who lived in the mura was ♂024, so he was the only adult who resided patrilocally as defined by Country membership. C62 was ambiguously located on the border between Alyawarra and Eastern Aranda territories, and ♂024 was generally identified non-pejoratively as Eastern Aranda. Likewise, linguistic evidence suggests that ♂330, the deceased F of ♀197, ♀199 and ♀215, was Eastern Aranda. Intersocietal marriages such as these were common, with language group exogamy characterizing 22% of the marriages in the research population (Denham 2012).

The 10 women were members of 6 Countries (C38, C41, C42, C43, C58, C70). Since Country membership was inherited from one's F, a woman and her children were members of two different Countries. Thus detecting matrilineal descent was a bit more difficult than detecting patrilineal descent, but it was both present and pervasive.

Genealogies. Figure 6.1 is the first of a series of genealogical diagrams that I use in this paper. This one pertains to mura Liladera, the others to murelgwa Gurlanda. This Figure, which is one of many possible genealogical diagrams of relations among Liladera residents,

is to be examined in conjunction with Table 6.1. It shows relations in mura Liladera on 1 July 1971 as depicted in Figure 5.2, and includes all living marriageable people but no unmarriageable people and only a small, representative selection of close deceased ancestors.

Figure 6.1 shows no F-S, M-S, B-B or B-Z biological links among the adults living in mura Liladera, and only 2 biological F-D links; *viz.*, ♂010 to ♀216 and ♂015 to ♀195. I understand that knowledge of paternity always may be questioned, but I tentatively accept assertions of biological paternity here.



Key to all genealogical diagrams

Symbols: Δ = males, O = females.
Symbol colors: open = living in this mura, gray = living in a different mura, black = deceased.
Linkages: ⌐¬ = sibling pairs, ⌊⌋ = marital pairs, | = parent-child pairs.
3-digit numbers beneath Δ/O: personal identification numbers.
R##: residence identification numbers.
Ovals and similar shapes: groupings of residents within numbered residences.
Generation levels and moieties: G+3 eldest to G-3 youngest level; green = even, pink = odd moiety

Figure 6.1. Genealogical diagram, mura Liladera, 1 July 1971.

Biological and classificatory relations among the 10 women were more complex than among the men. Close genealogical data in Table 6.1, plus in-depth genealogical data that will not fit into Table 6.1 but does appear in the genealogical diagram in Figure 6.1, reveal a set of

matrilineal relationships radiating from ♀160, her deceased husband ♂330, and her living husband ♂010, and another set of matrilineal relationships associated with ♂015 and ♂040. Notice that the linkage between the left and right halves of Figure 6.1 was through women ♀316 and ♀317, a pair of parallel cousins.

The genealogical relations that characterized this mura seemed not to support traditional models of Australian Aboriginal residential group compositions that focused exclusively or primarily on men and emphasized patrilineality, patrifiliation and patrilocality. The men were not irrelevant, but in general women provided the "connective tissue".

Concerning ♀160 and the left side of the diagram:

- ♀160 was M of ♀177, ♀197, ♀199 and ♀216, so all 4 of those daughters were full- or half-Z of each other (♀216 is ♂010's only known child).
- ♀160 was FM of ♀215. ♀215's F ♂028, a son of ♀160+♂330, did not live at Liladera.
- ♂024's FZ ♀378 once was married to ♂330 who was a deceased H of ♀160. Thus ♂024's wife ♀177 was his FZHD, a close classificatory FZD.

Concerning ♂015, ♂040 and the right side of the diagram:

- ♂015 was ♂010's FBDS, a classificatory ZS, and ♀195 was ♂010's classificatory ZSD.
- ♂040 was ♂015's MZDS, a classificatory ZS.
- Since ♂040's wives ♀195 and ♀211 were D of a pair of full-Z ♀176 and ♀405, they were parallel 1st cousins and close classificatory Z.

Moieties, skins and classificatory kin types. Although the men who resided at mura Liladera were members of four different Countries and were not biologically related to each other, their moiety and section memberships revealed important classificatory relations. Here I disregard genealogical relationships and kinship terms, but focus on skin memberships that reveal the following patterns of kin types. Two of the men, ♂015 and ♂024, were same sex, same patrimoiety (PN), same section (N), same generation level (Gen.0) and different Countries (C38, C62), therefore were distant classificatory B. The other two men, ♂010 and ♂040, were same sex, same patrimoiety (KB), same section (K), different generation levels (+1 and -1) and different Countries (C15, C58), therefore were distant classificatory FF and SS. ♂040 and ♀215 were opposite sex, same patrimoiety (KB), same section (K), same generation level (Gen.-1), and different Countries (C15, C41), therefore were distant classificatory siblings. Thus, with only a slight loss in precision, skin terms provided quick access to relations even if specific kinship reference terms were missing.

R26 kinship term matrix. In Table 6.2, kinship terms as the Alyawarra applied them to each other tell us a great deal about behavior concerning residential group compositions. Appendix 3 contains a complete list of Alyawarra kinship reference terms with their code numbers, expanded English language glosses, and Northern Aranda equivalents from Spencer and Gillen (1899).

The Alyawarra kinship term applications data file contains 23,600 kinship term applications that I generated by eliciting the kinship term that each of 104 people used with reference to photographs of 227 people in the research population. The field methods that I used to collect the data are described in detail in Denham and White (2005), the first systematic analysis of the data appears in Denham, McDaniel and Atkins (1979) and more recent explorations of the dataset appear in Denham (2011, 2012 and 2013a).

Pairs of terms that Ego and Alter applied to each other may display relationships with varying degrees of "correctness", including but not limited to the following:

a) All right: internally consistent with correct reciprocals such as MB and ZS.
b) Consanguineal vs. affinal: acceptable equivalents such as MB and DH, where Ego said Alter was MB, but Alter - whose D was married to Ego - said Ego was DH; i.e., Ego used a consanguineal term but Alter used an equivalent affinal term both of which were correct.
c) Omaha option: Omaha skewing yielded special transformations in which a man ruled out the possibility of marrying his MBD by legitimately referring to her as M while she may (or may not) have referred to him as FZS. Because he referred to her as M rather than as MBD, marriage between this pair was prohibited.
d) All wrong: mistakes such as referring to a man with a kinship term that applied only to a woman, or vice versa.

Table 6.2, based on the kinship term applications data file, permits a closer examination of Alyawarra perceptions of their own relations at mura Liladera.

The kinship term matrix (white shading) shows the kinship reference terms used by men for other men (upper-left), by men for women (upper-right), by women for men (lower-left), and by women for other women (lower-right). Cell entries in the Table include kinship term code numbers and abbreviations of their minimal glosses. The absence of data for an ID# means that I did not elicit terms from the person whose ID# appears at the left margin.

Although the four men did not constitute a patriline, the relations revealed by the kinship terms in the Men-Men quadrant show that ♂010 in G.0 was related to the men in G-1 and G-

2 through his biological or classificatory Z. Likewise the Women-Women quadrant shows that all the women in G-1 and G-2 referred to ♀160 as biological or classificatory M or MM, and ♀160 reciprocated with D or DD. These uniformities and consistencies prevail throughout the Table. As a final example here, notice that all of the men referred to their wives with KT#18 anowadya, all of the women likewise referred to their husbands with KT#18 anowadya, but ♂015 referred to his wife's Z with KT#14 FZD, an acceptable alternative to KT#18 W. I have not detected inconsistencies in the Table.

Mura R26			Men				Women									
	Gen Level		G.0	G-1		G-2	G.0	G-1						G-2		
	Patriline – Section		K	N	N	K	P	B	B	B	B	B	B	P	P	K
	Country#		C58	C38	C62	C15	C43	C70	C58	C41	C41	C41	C58	C38	C42	C41
	ID#		010	015	024	040	160	171	176	177	197	199	216	195	211	215
Men	G.0	010	24 Self	17 ZS	17 ZS	2 ZDS	18 W	16 D	16 D	16 D	16 D	16 D	16 D	5 DD	5 DD	1 SD
	G-1	015	9 MB	24 Self	12 YB	17 S	7 FZ	18 W	18 W	14 FZD	14 FZD	14 FZD	14 FZD	16 D	16 D	17 D
	G-2	040	2 MMB	9 MB	9 MB	24 Self	4 FM	7 FZ	19 WM	19 WM	19 WM	19 WM	19 WM	18 W	18 W	2 ZDD
Women	G.0	160	18 H	16 S	16 S	5 DS	24 Self	17 D	17 D	17 D	17 D	17 D	17 D	2 DD	2 DD	4 SD
	G-1	171	6 F	18 H	13 MBS	16 BS	8 M	24 Self	11 EZ	11 EZ	11 EZ	11 EZ	12 YZ	17 D	17 D	16 BD
	G-2	195	5 MF	6 F	6 F	18 H	2 MM	8 M	8 M	8 M	8 M	8 M	8 M	24 Self	12 YZ	14 MBD
		211	5 MF	6 F	6 F	18 H	2 MM	8 M	8 M	8 M	8 M	8 M	8 M	11 EZ	24 Self	14 MBD

Key to Table 6.2

Columns: Sex: Men, Women
Subcolumn1: Generation levels: G.0, G-1, G-2
Subcolumn2: Patrimoiety / section
Subcolumn3: Country #
Subcolumn4: ID#
Cell entries: Numeric kinship term code (e.g. 9) + alphabetic abbreviation of minimal kinship term gloss (e.g., MB); thus 9=MB
Kinship terms: Key to kinship terms appears in Appendix 3

Table 6.2. Kinship term applications among men and women of mura R26, Liladera, 1 July 1971.

Notice the matrimoiety descent line that connects ♀160 in P-section of G.0, her 6 biological and classificatory D in B-section of G-1, and her 2 DD in P-section of G-2. This is one of the pair of matrimoieties represented by the two parallel diagonal dotted lines descending from upper-right to lower-left in Figure 3.10. The matrimoieties may be there by design, or may simply be a logical consequence of proper marriages in accordance with the patrimoieties and the generation moieties. The same pattern appears consistently where appropriate below in the mura that comprise murelgwa Gurlanda, and a violation of this pattern would be a sure symptom of a wrong marriage.

Summary – mura Liladera. This first case study focused on a 14-person dispersed mura that served as a microcosm for the examination of analytical methods and representative

relationships that are more challenging to explore in larger communities. The table of residential group compositions data, the genealogical diagram and the kinship term matrix facilitated the concurrent examination of demographic and genealogical relations, descent and generation moieties, skin terms, generation levels and applications of kinship terms. Together they yielded a rich, multifaceted, and internally consistent view of residential group compositions within mura Liladera.

Social organization of murelgwa Gurlanda

This part of the paper is filled with details, as were the previous paragraphs, without which much of my argument would be content-free. In it, I follow approximately the same procedures that I used to analyze the social organization of mura Liladera, but I analyze murelgwa GurlandaB3 at two different levels. First I examine it as one integrated entity with 31 residences; next I examine it as 6 separate muras or neighborhoods consisting of 1 ngundya, 5 alugeras and their affiliated anoardegans.

In this part, I am especially concerned with methodological problems associated with extracting "clean signals" or "high resolution images" from "noisy data". I use these metaphors to convey the idea of removing scratches, static, distortions, missing data and many other kinds of "noise" from audio and video recordings. My greatest concern is with the problem of removing noise without simultaneously losing essential portions of the signals or images, a common problem when restoring early recordings and films. The sampling problems I confront here may be more tractable when I analyze the full 377-person Alyawarra01 dataset at a later date.

Murelgwa Gurlanda as a whole. Table 6.3 is a detailed tabulation of data concerning residential group compositions among 83 people in Figure 5.5, murelgwa GurlandaB3, 14 September 1971, called "Gurlanda" in the remainder of this part. Each shaded group of rows corresponds to the people who lived in a residence that is numbered in Column 2, in the order in which I identified residences. Within each residence, men are listed first and their wives are listed below them. Table 6.3 uses the same format as Table 6.1.

Table 6.3a-b. Residential group compositions at murelgwa GurlandaB3, 14 September 1971.
(Table 6.3a is on this page, Table 6.3b is on the following page.)

Key to Table 6.3a-b

Col. 1: Neighborhood / mura number
Col. 2: Residence number
Col. 3: Sex. 1 = male, 2 = female
Col. 4: Identification number (ID#)
Col. 5: Relink. Genealogical relationship between H and W: MBDDD, FZD, MBD, MMBDD, FZDDD; e,g., in R33, ♂9's W ♀204 is his MBDDD
Col. 6: Year of Birth
Col. 7: Marital status. 1 = unmarried, 2 = married, 4 = widowed
Col. 8-9: Primary and secondary languages spoken
Col. 10: Patrimoiety. KB = Kamara-Burla; PN = Pityara-Ngwariya
Col. 11: Section. K = Kamara, P = Pityara, B = Burla, N = Ngwariya
Col. 12: Generation level within generation moieties (see text)
Col. 13: Country code
Col. 14-18: ID# of father, mother, spouse1, spouse2, spouse3

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
Nbrhd	R#	Sex	ID#	Relink	YoB	MarStat	Lang1	Lang2	Moiety	Section	Gen Level	Ctry	Fa	Mo	Sp1	Sp2	Sp3
11	11	1	8		1903	4	1	0	KB	K	G.0	44	305	364	370		
11	11	1	14		1912	4	1	3	PN	N	G-1	73	409	408	340		
21	21	2	166		1919	4	3	0	PN	N	G+1	61	404	402	331		
21	21	2	167		1923	1	1	0	KB	B	G-1	44	1	154			
21	21	2	187		1936	1	1	0	KB	B	G-1	44	1	154			
21	21	2	190		1939	1	1	0	KB	B	G-1	44	1	154			
21	21	2	192		1940	1	10	0	KB	K	G.0	41	331	166			
21	31	1	1		1880	2	1	0	KB	K	G.0	44	305	363	154		
21	31	2	154		1900	2	1	3	PN	P	G.0	42	361	310	335	336	1
21	32	1	21		1924	2	1	0	PN	N	G-1	43	345	153	175		
21	32	2	175		1932	2	1	0	KB	B	G-1	44	1	154	21		
21	33	1	9		1904	2	1	3	PN	P	G.0	42	361	310	337	152	204
21	33	2	152		1898	2	10	0	KB	K	G.0	30	333	384	9		
21	33	2	204	MBDDD	1948	2	1	0	KB	K	G-2	15	324	162	9		
21	38	1	29		1926	2	1	0	PN	N	G-1	42	414	337	405	186	220
21	38	2	186		1936	2	1	0	KB	B	G-1	44	8	370	29		
21	38	2	220		1955	2	1	0	KB	B	G-1	44	8	370	29		
22	22	2	183		1933	2	10	0	KB	K	G.0	41	331	166	17		
22	22	2	189		1937	2	10	0	KB	K	G.0	41	331	166	17		
22	34	1	17		1918	2	1	0	PN	P	G.0	42	361	310	183	189	
22	34	2	183		1933	2	10	0	KB	K	G.0	41	331	166	17		
22	34	2	189		1937	2	10	0	KB	K	G.0	41	331	166	17		
22	42	1	31		1930	2	1	0	PN	N	G-1	81	367	369	181		
22	42	2	181	FZD	1933	2	1	0	KB	B	G-1	44	312	366	31		
22	43	1	13		1914	2	1	0	PN	P	G.0	43	342	398	168		
22	43	2	168	ZHZ	1923	2	1	0	KB	K	G.0	58	304	151	13		
22	44	1	37		1937	2	1	0	PN	N	G-1	43	13	168	208	217	
22	44	2	208	MMBDD	1950	2	1	0	KB	B	G-1	44	11	170	37		
22	44	2	217	MMBDD	1953	2	1	0	KB	B	G-1	44	11	170	37		
22	45	1	42		1944	2	1	0	PN	N	G-1	43	344	313	203	225	
22	45	2	203	MBD	1948	2	1	0	KB	B	G-1	44	27	359	42		

Table 6.3a.

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
Nbrhd	R#	Sex	ID#	Relink	YoB	MarStat	Lang1	Lang2	Moiety	Section	Gen Level	Ctry	Fa	Mo	Sp1	Sp2	Sp3
24	24	2	156		1912	4	1	0	KB	B	G+1	15	321	374	348		
24	24	2	207		1949	1	1	0	PN	N	G-3	31	26	173			
24	24	2	218		1954	1	1	0	PN	N	G-3	31	26	173			
24	24	2	227		1958	1	1	0	PN	N	G-3	31	26	173			
24	24	2	229		1958	1	1	0	KB	B	G-1	44	8	370			
24	24	2	230		1959	0	1	0	PN	N	G-3	31	26	196			
24	35	1	3		1890	2	1	0	PN	P	G.0	31	347	308	174		
24	35	2	174	MBD	1927	2	1	0	KB	K	G.0	44	306	355	3		
24	36	1	26		1928	2	1	0	PN	P	G.0	31	348	156	173	196	
24	36	2	173	MBD	1925	2	1	0	KB	K	G-2	15	7	155	26		
24	36	2	196	MBD	1941	2	1	0	KB	K	G-2	15	7	155	26		
24	37	1	7		1900	2	1	0	KB	B	G+1	15	320	360	155		
24	37	2	155		1907	2	1	0	PN	N	G-1	38	358	318	7		
24	39	1	27		1921	2	1	0	KB	K	G.0	44	306	355	359	188	
24	39	2	188	MBD	1936	2	1	0	PN	P	G.0	38	357	325	27		
24	40	1	12		1910	2	1	0	KB	B	G+1	15	322	375	169		
24	40	2	169		1922	2	1	0	PN	N	G-1	38	350	315	12		
24	41	1	11		1910	2	1	0	KB	K	G.0	44	305	364	170		
24	41	2	170	MBD	1925	2	1	0	PN	P	G.0	38	357	325	11		
23	25	2	153		1898	4	1	0	KB	K	G.0	58	303	362	345		
23	25	2	163		1910	4	1	0	KB	K	G.0	58	303	362	345		
25	25	2	150		1895	4	1	0	PN	N	G+1	38	349	399	9999		
25	25	2	151		1886	4	1	0	PN	N	G+1	38	349	399	304		
25	25	2	161		1907	4	1	0	KB	K	G.0	58	304	354	431		
25	25	2	213		1951	1	1	0	KB	B	G-1	58	23	184			
25	25	2	223		1956	1	1	0	PN	N	G-1	38	113	182			
25	46	1	45		1946	2	1	0	PN	N	G-1	43	13	168	219		
25	46	2	219	MBD	1954	2	1	0	KB	B	G-1	58	20	191	45		
25	47	1	20		1922	2	1	0	KB	K	G.0	58	304	151	191		
25	47	2	191		1939	2	3	0	PN	P	G.0	73	14	340	20		
25	48	1	23		1929	2	1	0	KB	K	G.0	58	304	354	184	201	202
25	48	2	184	FZDDD	1934	2	10	0	PN	P	G.0	29	415	411	23		
25	48	2	201	MBD	1948	2	1	0	PN	P	G.0	38	353	326	23		
25	48	2	202	FZDDD	1948	2	10	0	PN	P	G.0	29	415	1475	23		
25	49	1	28		1928	2	10	3	KB	B	G-1	41	330	160	382	210	221
25	49	2	210		1950	2	1	0	PN	N	G-1	38	19	179	28		
25	49	2	221		1955	2	1	0	PN	N	G-1	38	19	180	28		
25	50	1	39		1940	2	1	0	KB	B	G-1	58	311	165	214		
25	50	2	214	MBD	1951	2	1	0	PN	N	G-1	38	19	180	39		
25	51	1	40		1940	2	1	0	KB	K	G-2	15	324	157	195	211	
25	51	2	195	MMBDD	1950	2	1	0	PN	P	G-2	38	15	176	40		
25	51	2	211	MMBDD	1950	2	1	0	PN	P	G-2	42	29	405	40		
25	52	1	19		1921	2	1	0	PN	P	G.0	38	352	323	179	180	
25	52	2	179	MBD	1931	2	1	0	KB	K	G.0	15	324	157	19		
25	52	2	180	MBD	1929	2	1	0	KB	K	G.0	15	324	157	19		
25	53	1	32		1935	2	1	0	PN	P	G.0	38	356	159	200		
25	53	2	200		1948	2	1	0	KB	K	G.0	26	332	437	32		
25	54	1	5		1907	2	1	0	PN	P	G.0	38	352	323	185		
25	54	2	185		1935	2	1	0	KB	K	G.0	26	392	391	5		
25	55	1	113		1924	2	1	0	PN	P	G.0	38	357	325	182	209	
25	55	2	182	MBD	1930	2	1	0	KB	K	G.0	15	324	157	113		
25	55	2	209		1950	2	1	0	KB	K	G.0	26	332	437	113		

Table 6.3b.

Residences, residents and data tabulations. Table 6.4, based on data in Table 6.3, summarizes the number of residences and residents at Gurlanda. I have included the ngundya as a separate single-sex residence, and note here that all 30 of the anoardegans and alugeras were affiliated with it but are omitted from this tabulation. Also I have integrated R23 into the tabulation for R25 because those two alugeras were closely affiliated with each other both spatially and socially as explained in detail below.

In sum, the murelgwa had an adult population of 27 men and 56 women (83 people) living in 1 ngundya, 5 alugeras and 25 anoardegans (31 residences).

Neighborhood	# Single sex residences	# Affiliated anoardegans	# Adult residents			
			♂	Married ♀	Unmarried ♀	Row totals
R11	1 ngundya	-	2	0	0	2
R21	1 alugera	4	4	6	5	15
R22	1 alugera	5	5	7	2	14
R24	1 alugera	6	6	7	6	19
R23+25	2 alugeras	10	10	16	7	33
Subtotals	**6**	**25**	**27**	**36**	**20**	**83**
Column totals	**31**		**83**			-

Table 6.4. Number of residences and adult residents in murelgwa GurlandaB3.

Memmott (2007:126-127) conceptualized the formation of clusters and sub-clusters within murelgwa by two contrasting processes. In the first, a cluster or mura (i.e., a small camp with a few residences) formed, then grew by adding one or more residences at a time, until it eventually reached a "critical size or threshold" (my terms) at which point sub-clusters emerged from the expanding body of the cluster by a process that I call "budding". In the second, which seemed to characterize the Alyawarra, a single mura aggregated due to meteorological changes and that mura constituted the core of an incipient murelgwa. As additional mura attached themselves to the core mura, the sub-clusters or neighborhoods that characterized the murelgwa became more conspicuous, not due to critical sizes or thresholds that yielded a budding process, but rather due to the accretion of several independent mura around the first one that established itself at a given location. Of course these two processes could co-occur.

Polygyny. Table 6.4 shows that 2 widowers resided in ngundya R11; the other 25 men were married and lived in anoardegans with their wives. Among the married men, 15 had 1 wife each, 9 had 2 wives each and 1 had 3 wives, a total of 36 wives for 25 men, or a mean of 1.44 wives per husband. Among families with 2 wives each, 6 pairs of co-wives were biological Z and 3 pairs were classificatory Z; in the family with 3 wives, two were biological Z and the third was their classificatory Z; and the two widows who resided in

alugera R23 were biological Z once married to the same deceased man. Monogamy and sororal polygyny characterized Gurlanda.

Countries. Gurlanda was located near a dreaming site on the edge of Country C42. Table 6.3 shows that only 4 people who belong to C42 resided in the camp, all of them in the R22 neighborhood, called "mura R22" in the remainder of this part. Thus in the combined adult populations at Liladera and Gurlanda (n=14+83=97), only 4 men and 1 woman (5.15%) resided in their own topographic Countries. Significant numbers of linkages between people and their topographic and sociological Countries *did not* underlie Alyawarra camp compositions in 1971.

Sidedness. Houseman (1997) analyzed sidedness among all 114 Alyawarra marriages in my research population of 264 living people and 113 of their deceased ancestors (see Denham 2014a for the raw data, Denham and White 2005 for field methods, Houseman and White 1998 for network methods). The 36 marriages at mura Gurlanda were a subset of the 114 marriages in the complete Alyawarra dataset.

Unnamed exogamous patrilineal descent moieties KB and PN divided the Alyawarra into two intermarrying "sides". Viri-sidedness means that a man's marriage was on the same side of a matrimonial partition between wife-givers and wife-takers as were the marriages of his father, brothers, father's brothers, sons, and so on; uxori-sidedness, its matrilineal equivalent, means that a woman's marriage was on the same side of a matrimonial partition as were the marriages of her mother, sisters, mother's sisters, daughters, and so on. As Houseman and White (1998) have shown, long term consistency of sidedness in a kinship network follows automatically from egocentric marriage choices consistent with shallow ancestral sidedness, regardless of whether named or unnamed descent moieties are present.

The pattern of Alyawarra sidedness is quantifiable in various ways (Houseman 1997). From a male perspective, there is a 98% viri-sidedness rate for the network (100% = perfect conformity, 50% = random distribution). The same procedure used to measure the network from a female perspective shows a 95% uxori-sidedness rate. Only three wrong links go between sides as a result of a single wrong marriage by an Alyawarra man.

If we overlay generational moieties and section terms onto the patridescent moiety structure, their distributions are identical in both the closed and the age-biased Alyawarra kinship diagrams. Whether sidedness plus generation moieties gave rise to descent moieties and sections or vice versa is an interesting question, but their logical connection, not their historical development, matters most here.

Thus the Alyawarra marriage networks in Houseman (1997) reveal an unambiguous pattern of dual-sidedness that emerged not from an analysis of ideology, cognition or rules but directly from network analysis of a large body of descent, marriage, kinship, vital statistics and demographic data provided "from the ground up" by direct observation and by elicitation of fine-grained genealogies from most adult members of the Alyawarra research population. Here I am concerned with what people actually did when they married, regardless of what they may or may not say about it after the fact. The sidedness data reveals precise patterns, excellent data quality and no evidence of significant degradation of traditional Alyawarra society.

Relinking, the structural core, endogamy and exogamy. As I have shown in considerable detail elsewhere (Denham 2013a:29-31), 58 (50.9%) of the 114 marriages in the complete Alyawarra01 dataset showed no immediate genealogical ties between husband and wife; i.e., they were marriages between classificatory kin but not between biological kin. Among these 50.9% of marriages between classificatory kin, 28.2% were between pairs of Alyawarra thus were language group endogamous; the remaining 22.7% were between Alyawarra and non-Alyawarra thus were language group exogamous.

The remaining 56 (49.1%) marriages were between biological kin and were characterized by directed marriage cycles (Harary and White 2001:40); i.e., in addition to the H-W affinal link that joined the spouses, the pairs also were connected by other kinds of consanguineal and affinal linkages. Among them, 17 had consanguineal links only, 18 had multiple consanguineal links plus one close classificatory link, and 21 had consanguineal links plus 2 affinal links. The 17+18=35 that had only 1 affinal link plus consanguineal and close classificatory links may be thought of as the structural core of this Alyawarra population (Houseman 1997:6).

In sum, among the 114 marriages considered here, 49% were language group endogamous between biological kin; 28% were language group endogamous between close or distant classificatory kin; and 23% were language group exogamous among remote classificatory kin.

Male egos' genealogical relationships to their spouses among the 35-member structural core showed MBD=18, MMBDD=7, FZD=7, FZDDD=2 and MBDDD=1; i.e., 20% complied with the stated preference for marriage with MMBDD, but the kin types of the other women were poor predictors of marriage patterns. Matrilateral 1st and 2nd cross cousins far outnumbered all others.

Because of the W<H 14+ year mean age difference that precluded generational closure, a suitable wife among the Alyawarra had a 76% chance of being a matrilateral cousin (MBD/MMBDD/ MBDDD) and a 24% chance of being a patrilateral cousin (FZD/FZDDD) (Denham 2012). In the Alyawarra genealogies there were no cases of biological brother-sister exchange, but 11 cases of two brothers marrying two sisters, which was compatible with systematic age differences between spouses.

Among the 36 marital pairs residing at Gurlanda on 14 September 1971, 20 were members of the structural core characterized by directed marriage cycles as shown in Table 6.3, column 5. In other words, on that day about 30% of all Alyawarra marriages in the research population were present at Gurlanda, and about 57% of all marriages in the structural core were present there. With the structural core being disproportionately well represented among the families who attended this sequence of initiations at Gurlanda, the group we see here forms an especially close-knit family.

Thus who live with you at Gurlanda spans the full spectrum of closeness from a) very closely inbred families based mainly on matrilateral cross-cousin marriage, to b) marriages with close and distant classificatory kin within the Alyawarra language group, to c) exogamous marriages with remote classificatory kin who are members of non-Alyawarra – and often non-Arandic – language groups. This continuum stands in sharp contrast with long standing assertions by Birdsell and Tindale that depicted Australian Aboriginal societies as endogamously closed and free of inbreeding (Tindale 1953, 1976; Birdsell 1953, 1976, 1993; Denham 2013a).

Both sidedness and relinking were properties of Alyawarra social organization that revealed historical patterns spanning multiple generations, thereby providing direct access to historical processes that shaped Alyawarra society in the mid-19th century before the arrival of White Australian colonists.

Mean age differences within extended families. Mean age differences within extended families seem to be easy to visualize and understand, but in practice they are somewhat more problematic. A common failure to grasp the significance of the large mean W<H age difference has resulted in frequently erroneous generalizations concerning residential group compositions in Aboriginal Australia. For example, it seems innocuous to say that "a man may take into his camp his old widowed mother, father, father's father or wife's father" (Meggitt 1962:79, also quoted by Memmott 2007:28). However, the mean age of married men in the Gurlanda population was 49.8 years, the mean age of married women was 29.7

years, and population-wide mean age differences in generation intervals were F>Ch = 42 years, M>Ch = 28 years, W<H=14 years. Brief computations using these figures appear in Table 6.5.

The result of these age differences is that hypothetical married men with mean ages of 49.8 years had F with mean ages of about 92 years and FF with mean ages of about 134 years. The likelihood of finding a man aged 50 years who was accompanied by his living F of age 92 years (a decade older than the oldest living member of the Alyawarra research population) was vanishingly small, and living with a FF of age 134 years lies far beyond the range of human biology in the 20th century and earlier. These means may not apply to the extremes; e.g., if a man of 28 married a woman of 14, his own FF at the time they married could be as young as (28x3=) 84 years and his WMM as young as (14x3=) 42 years. Thus parts of Meggitt's statement were just barely possible under boundary conditions, but given the actual demography of Central Australian Aboriginal populations, married men almost never had living grandparents, and were much more likely to have living wife's parents than living own parents, with WMM being by far the youngest and the one most likely to be alive. Age and survival asymmetries are exaggerated by sororal polygyny.

Implications of these age relations are reflected variously in the Gurlanda residential group compositions data, but clear patterns were very difficult to extract even from a sample of 83 adults. For example, 7 widows and 2 widowers lived in Gurlanda, but because of demographic stochasticity it is impossible to make a general statement concerning which if any of their children co-resided with them.

Mean ages of parents of H and W	Minimum ages of grandparents of H and W	Mean ages of grandparents of H and W
HF=49.8+42=91.8	HFF=28+28+28=84	HFF=49.8+42+42=133.8
HM=49.8+28=77.8	HMF=28+14+28=70	HMF=49.8+28+42=119.8
WF=29.7+42=71.7	WFF=14=28+28=70	WFF=29.7+42+42=113.7
WM=29.7+28=57.7	WMM=14+14+14=42	WMM=29.7+28+28=85.7

Table 6.5. Hypothetical mean age differences within extended families.

Consider these conditions: a) 3 widows (♀150, ♀161, ♀163) had no known living children, so useful data is not available for them. b) 2 widows (♀153, ♀156) had no known daughters but had 1 son each living at Gurlanda; and 1 (♀166) had no known sons but had 3 daughters living at Gurlanda, so these women could live within or outside of Gurlanda where their children lived, but could not chose between sons and daughters since no options were available to them. c) Widow ♀151 had a son living at Gurlanda and a daughter living

elsewhere, widower ♂014 had a daughter living at Gurlanda and a son living elsewhere, and widower ♂008 had 3 daughters living at Gurlanda and 3 sons living elsewhere; hence choices were possible in these three cases. d) In addition to the 9 widows and widowers who lived at Gurlanda3B on 14 September 1971, 2 other widows (♀157, ♀165) who sometimes lived at Gurlanda had children of both sexes living at Gurlanda and at other nearby camps, but those widows were living elsewhere when I mapped and censused Gurlanda3B on 14 September 1971, so relevant data is not available for them.

Thus in this population of 11 widows and widowers, 1 widow lived at Gurlanda with her son, 2 widowers lived there with their daughters, and good data was unavailable for the other 8 due to natural attrition and high mobility. Meaningful generalization is impossible here.

The safest conclusion is that it may not be easy to detect unambiguous patterns – even simple ones - in this small, complex dataset. Yet the dataset for Gurlanda is larger than many comparable datasets for Aboriginal Australia, is far larger that the so-called "average" (mean, modal or median) sizes of hunter-gatherer camps in general, its depth and accuracy are excellent, and the cultural integrity of the camp, while by no means pristine, had been less disrupted by colonization than had other camps that I visited in Central Australia.

Countries, moieties and residential groups. Table 6.3 shows that the 27 married or widowed men were members of 10 different Countries, 4 ostensibly forming patrilineal F-S descent strands in patrimoiety KB and the other 6 ostensibly forming similar F-S strands in patrimoiety PN. Strehlow's (1947:128-145) use of the Northern Aranda term that he glosses as "*njinanga* sections" refers to the father-son bond that repeats endlessly through the adjacent and alternating levels of the generation moieties. It seems to be related to the Alyawarra terms *ailinakakija* and *alakakija*, derived from *ailinaka*, "**we two** who stand in father-son relationship to each other", and *alaka*, "**they two** who stand in father-son relationship to each other" (Yallop 1969). In the Alyawarra section system, it seems to represent, in its broadest sense, the pair of sections that define a patrimoiety, and thereby refers to relationships between people and their paternal Dreamings and Countries.

Strehlow's biologically based multi-generation male descent chains were central features in the social organization of Arandic speaking people of Central Australia, and indeed such strands were immediately obvious in detailed Alyawarra Country genealogies. However, others have claimed or implied that these F-S chains or something similar to them served as the basis for residential groups as well. At least on the surface, Countries or something like them have been described as cognitive groups based on descent, while hordes or something like them have been described variously as land owning or resource exploiting groups based

on co-residency. The extent to which the two kinds of groups overlap is an intrinsically quantitative question. Murelgwa Gurlanda may be large enough to show whether this conflation of descent groups and residential groups is justifiable at the level of a murelgwa as a whole and of its constituent muras.

Table 6.6 extracts and summarizes descent and generation moiety relationships among the 27 men living in Gurlanda camp. Rows represent alternating generation moieties (BN+KP) and their corresponding generation levels (G+1 through G-2); shaded pairs of columns are muras based on ngundya R11 and alugeras R21 through R25, each partitioned into two patrimoieties (KB and PN). Cell entries are codes for individual men[12], each containing ID# and Country#. I refer to this distribution of moieties, Countries and people throughout the remainder of this part.

Mura		**Mura R11 Ngundya**		**Mura R21 Alugera**		**Mura R22 Alugera**		**Mura R24 Alugera**		**Mura R23+25 Alugera**	
Descent Moiety		**K B**	**P N**	**K B**	**P N**	**K B**	**P N**	**K B**	**P N**	**K B**	**P N**
Generation											
Moiety	**Level**										
BN	**G+1**	-	14.73	-	-	-	-	-	-	-	-
KP	**G.0**	8.44	-	1.44	9.42	-	13.43 17.42	11.44 27.44	3.31 26.31	20.58 23.58	5.38 19.38 32.38 113.38
BN	**G-1**	-	-	-	21.43 29.42	-	37.43 42.43 31.81	7.15 12.15	-	28.41 39.58	45.43
KP	**G-2**	-	-	-	-	-	-	-	-	40.15	-

Key to Table 6.6:

Columns: mura within Gurlanda3B (Mura R11 ngundya, mura R21 alugera, etc.)
Rows: Descent moieties labeled by section membership (KB, PN)
Subrows: Generation moieties labeled by sections and generation level (BN=G+1, KP=G.0, BN=G-1, KP=G-2)
Cell entries: man's ID# to left of dot . man's Country# to right of dot (e.g., 8.44 means ♂008.C44)

Table 6.6. Men in each mura, descent moiety and Country cross-tabulated by generation moieties and levels.

Marriages are famously known to link males to females in opposite patrimoieties, but they also link males to males in opposite patrimoieties. Among the Alyawarra at MacDonald Downs in 1971, each man "owned" a Country in his own patrimoiety and "bossed" or managed a Country in the opposite patrimoiety. Those who owned a Country had primary responsibility for performing certain duties for their own Dreamings, while those who bossed a Country performed supporting roles for the owners when they executed their duties. *Kirda* referred to the tradition whereby men owned Countries through patrilineal descent.

[12] I could have done this just as effectively with women, except that matridescent lines are more difficult to construct, visualize and interpret. I deal with women in greater detail in Table 6.8.

Kurtungurlu (Alyawarra) or *kurdungurlu* (Warlpiri [Bell 1993:114]) or *kutungula* (Southern Aranda [Strehlow 1947:123-126]) referred to the tradition whereby men inherited certain rights and duties from their mothers, including responsibility to boss their mothers' Countries. So a man owned his own, his F's and his FF's Country in his own patrimoiety, and bossed his M's, MB's and MF's Country in the opposite patrimoiety. When W=MBD, a husband's responsibilities by default included owning his own Country *and* bossing his wife's Country.

Together these two traditions of owning and bossing gave complementary emphasis to a man's FF and his MF in the Dreamtime (Bell 1993:20; Meggitt 1962; Moyle 1986:34-35). *Kirda* and *kurtungurlu* provided 100% redundancy throughout the cognitive map, especially when intersocietal marriages occurred. Even if all owners of a Country died, the bosses or managers of the Country—perhaps scattered among other language groups — could reconstitute it by recruiting new members and teaching them the essential knowledge, embedded in their own copy of the cognitive map, that was lost when the original owners died. People and language groups could disappear, but Dreamings and Countries were virtually eternal, as guaranteed in part by this all-encompassing and highly flexible mechanism for self-replication of the Dreamings that manifested itself in residential groups.

In Table 6.6, generation level G+1 had only 1 living member (♂14.C73); all others were dead. Row G.0, the generation level with the largest number of adult male representatives, had 15 living members. G-1 had a smaller population of only 10 married men; a few unmarried young men were omitted here, including ♂056 and ♂067 who were the first two young men to be initiated shortly after I made this map of Gurlanda. G-2 at the youngest level had only 1 married man; again unmarried young men were omitted. In other words, G+1 with only 1 elderly living member had almost died out, G.0 and G-1 were mature with a total of 25 members, and G-2 with only 1 young member (♂040) was just beginning to reach maturity. Each generation level passed through this sequence as it aged.

Summary – murelgwa Gurlanda. This second case study used the tools and baseline data from the 14-person mura Liladera study to examine the 83-person murelgwa Gurlanda. The murelgwa was not just a large mura; rather it was a carefully articulated integration of 5 separate mura each of which resembled mura Liladera in some important ways but differed from it in other ways. For example the murelgwa had 5 neighborhoods each with its own alugera, but it had only 1 ngundya that served as a meeting place for all men in the camp. The greater size of the murelgwa made it possible to see statistical and other patterns that were less accessible in smaller communities, such as mean age differences within extended

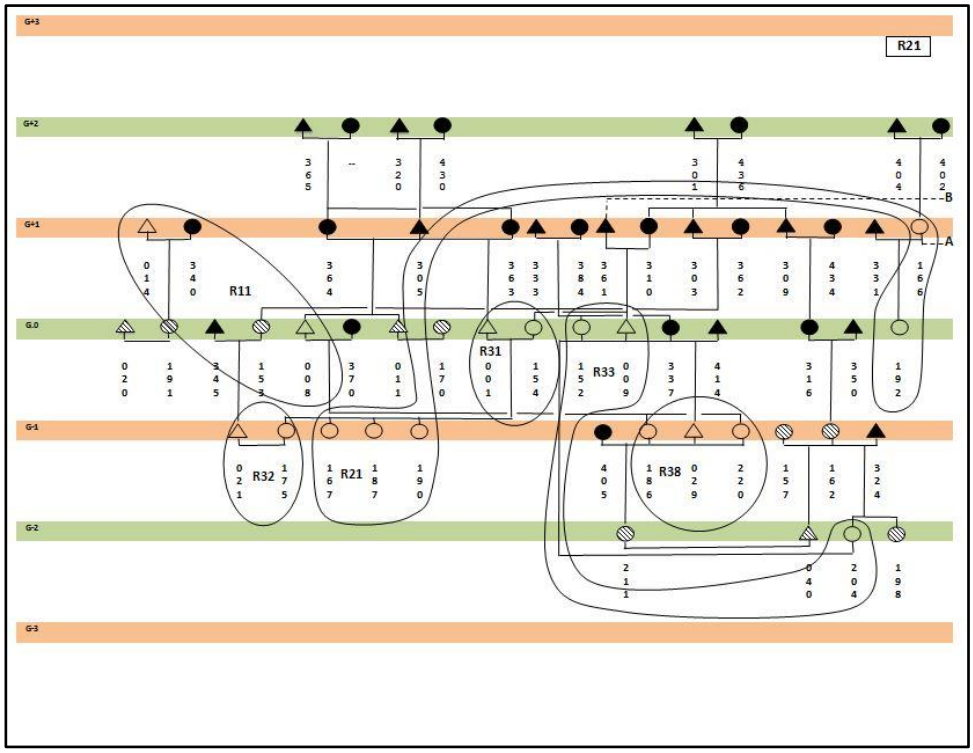
families; the extent of endogamy, exogamy and relinking; the owning-bossing complementarity; and relative population sizes of the generation levels.

Constituent muras within murelgwa Gurlanda. Here I analyze genealogical relationships and some of their implications within individual muras that constitute the murelgwa. Throughout this part, I rely heavily on Table 6.3 that contains data for all 83 residents of the murelgwa. My discussion of each mura utilizes a standard set of "tools" including a genealogical diagram and a kinship term matrix similar to those I used in my discussion of mura Liladera. In each case I deal mainly with a distinctive topic that the selected mura best exemplifies.

Mura R21 and ngundya R11: genealogy and kinship term matrix. Mura R21 centered on alugera R21 had 15 residents, while ngundya R11 had 2, for a total of 17 people, 6♂ and 11♀, in 6 residences. I treat this combined alugera and ngundya as an integrated unit in Figure 6.2 because ♂008, one of the residents of the ngundya, had a half-B ♂001 living in R31 and two daughters living in R38, and had no direct connections with other residences in the murelgwa. His close friend ♂014 lived at the ngundya with him.

Near the center of the diagram, ♂009 and his full-Z ♀154 were members of G.0. They were key members of the Gurlanda population since they were senior members of C42, the topographic Country within which murelgwa Gurlanda was physically located. Furthermore, ♂009 was a close classificatory F of ♂029, and his full-Z ♀154 was the biological M of 4 of the women who lived in the mura. ♂009's youngest wife, ♀204, of G-2 was two generations younger than her husband and was his biological MBDDD. Their alternate generation marriage was part of the structural core of Alyawarra society. Notice that ♂021, H of ♀175 who was one of ♀154's daughters, lived uxorilocally while his M, ♀153, lived elsewhere.

The five women who lived in alugera R21 came from two separate descent groups. The cluster of 3 in G-1 were daughters of ♂001 and ♀154, while the 2 in G+1 and G.0 showed no detectable relations to the other three.



Key to all genealogical diagrams

Symbols: Δ = males, O = females.
Symbol colors: white = living in this mura, hatched = living in a different mura, black = deceased.
Linkages: ⌐¬ = sibling pairs, ⌊⌋ = marital pairs, | = parent-child pairs.
3-digit numbers beneath Δ/O: personal identification numbers.
R##: residence identification numbers.
Ovals and similar shapes: groupings of residents within numbered residences.
Generation levels and moieties: G+3 eldest to G-3 youngest level; green = even, pink = odd moiety

Figure 6.2. Genealogical diagram, Gurlanda alugera R21 and ngundya R11, 14 September 1971.

From the 27 men residing at GurlandaB3 on 14 September 1971, I collected only 22 sets of kinship term applications, with 5 data records missing due to men's absences, illnesses, deaths, etc. Similarly, data from women was incomplete. Thus the kinship term matrices, which optimally would have been square, were slightly asymmetrical.

The mura R21 genealogical diagram in Figure 6.2 deals with both men and women, but the kinship term matrix in Table 6.7 deals only with women. This matrix is in the same format as that used for mura Liladera in Table 6.2, and spans 4 living generation levels from G+1 to G-2. Adult women were present in all four of the generations, but adult men were present in only three of them. The women were members of 6 Countries. I interpret the matrix according to the principles introduced in my discussion of mura Liladera's kinship terms. The missing data for ♀154 is especially unfortunate, but the missing data for ♀167 probably

would not have added much new information since she was a full-Z of the other C44 women of G-1. I have not found any internal inconsistencies in the table.

Mura R21		Women										
GenLevel		G+1	G.0			G-1						G-2
Country#		C61	C30	C42	C41	C44	C44	C44	C44	C44	C44	C15
ID#		166 ^	152#	154#	192*	167*	187*	190*	175#	186#	220#	204#
G+1	166	24 Self	8 M	7 FZ	17 D	22 HZBW	22 HZBW	22 HZBW	22 HZBW	22 HZBW	22 HZBW	17 D
G.0	152	17 D	24 Self	22 HZBW	3 DD	16 BD	16 BD	16 BD	16 BD	16 BD	16 BD	3 DD
	192	8 M	2 MM	4 FM	24 Self	7 FZ	7 FZ	7 FZ	7 FZ	23 BWM	23 BWM	12 YZ
G-1	187	22 HZBW	7 FZ	8 M	16 BD	11 EZ	24 Self	12 YZ	11 EZ	12 YZ	12 YZ	16 BD
	190	22 HZBW	7 FZ	8 M	16 BD	11 EZ	11 EZ	24 Self	11 EZ	12 YZ	12 YZ	16 BD
	175	22 HZBW	7 FZ	8 M	16 BD	11 EZ	12 YZ	12 YZ	24 Self	12 YZ	12 YZ	16 BD
	186	14 FZD MBD	7 FZ	8 M	23 BWM	11 EZ	11 EZ	11 EZ	11 EZ	24 Self	12 YZ	23 BWM
	220	14 FZD MBD	7 FZ	8 M	23 BWM	11 EZ	11 EZ	11 EZ	11 EZ	11 EZ	24 Self	11 EZ
G-2	204	8 M	2 MM	4	11 EZ	7 FZ	23 BWM	7 FZ	7 FZ	23 BWM	23 BWM	24 Self

Key to Table 6.7:

Columns: Sex: Women only
Subcolumn1: Generation levels: G+1, G.0, G-1, G-2
Subcolumn3: Country #
Subcolumn4: ID#
Cell entries: Numeric kinship term code (e.g. 8) + alphabetic abbreviation of minimal kinship term gloss (e.g., MB); thus 8=M
Kinship terms: Key to kinship terms appears in Appendix 3
Marital status key: ^ widow, # married, * never married

Table 6.7. Kinship term applications among women affiliated with mura R21.

In the upper-right quadrant of Figure 6.2, two dashed lines terminate at connectors A and B, and continue at connectors A and B in the diagram for mura R22. These dashed lines in both diagrams highlight special relations between muras R21 and R22 that I discuss below in the context of mura R22 (see next diagram).

Summary – mura R21. The genealogical diagram of mura R21 displays relations for the men who lived at the ngundya, the B-Z pair who were owners of the topographic Country in which Gurlanda was situated, and a single alternate generation marriage between a man and his biological MBDDD, the only relinked marriage in that mura. The kinship term matrix contains only women and focuses on the internal consistency of their relationships across 4 generations.

Mura R22: genealogy, hordes, kinship term matrix, cross-linkages. Mura R22 has 12 residents (5♂, 7♀) in 6 residences, and is the smallest independent mura at Gurlanda.

Despite the relative simplicity of its genealogical diagram, this mura was quite complex especially when examined in conjunction with R11 and R21.

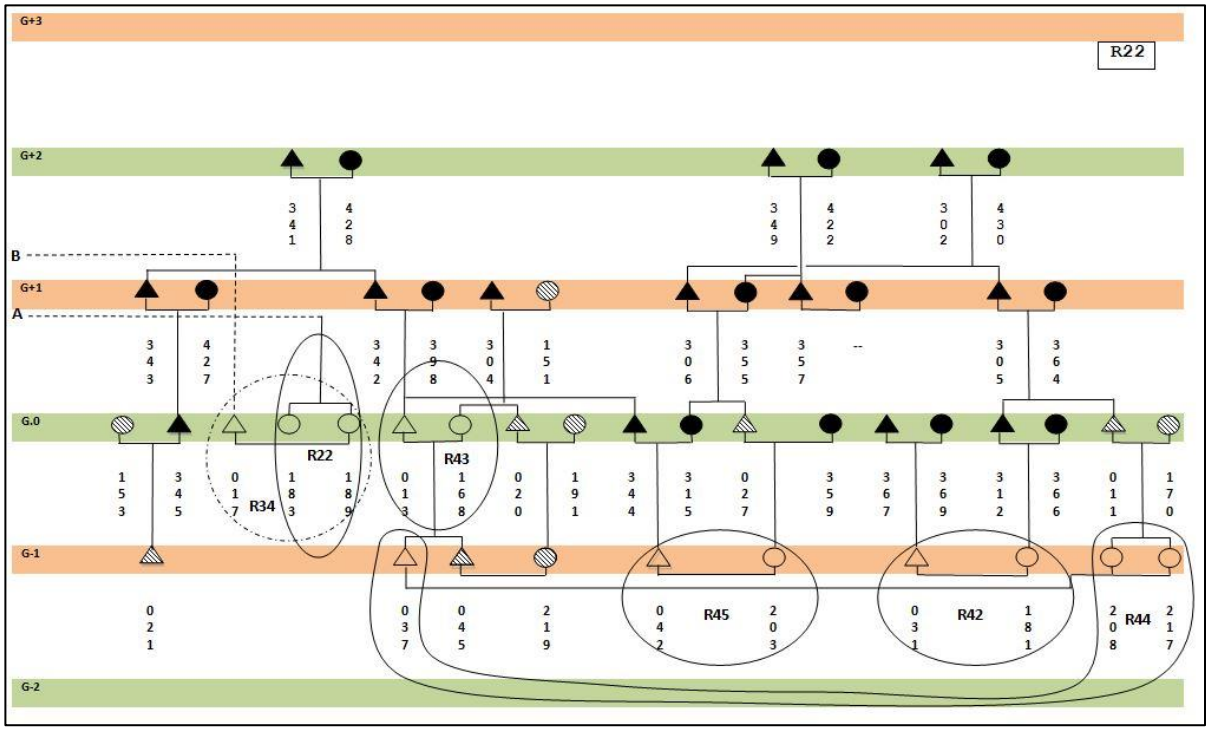


Figure 6.3. Genealogical diagram, Gurlanda alugera R22, 14 September 1971.
See Figure 6.2 for Key.

Figure 6.3 and Table 6.8 show that alugera R22 had only 2 women residents, ♀183 and ♀189, both of whom also appear as residents of anoardegan R34 where they lived part-time with their husband ♂017 who was a full-B of ♂009 in mura R21. Furthermore, these full-Z were full-Z of ♀192 and D of ♀166 who lived in Figure 6.7, alugera R21 (follow connectors A and B to the R21 diagram above). This cross-linkage between the two muras resulted from problems in interpersonal relationships between the pair of Z, their M and their H. People in general recognized their problems and accepted their solutions. Such arrangements seemed to work well enough, but they yielded exceptional data. I double-counted these two women.

The focal group of men in Figure 6.3 included ♂013, his full-S ♂037 and his full-BS ♂042. They were members of Country 43 and patrimoiety PN, and all lived with their wives in anoardegans in this mura, R22. ♂045, another full-S of ♂013, lived with his wife in R25.

Table 6.8 cross-tabulates kinship reference terms for biological and classificatory relationships between these men by generation levels. To read the Table, begin at the lower

left corner. The 3 bottom rows are in generation level G-1 as are the 3 right-most columns. The 3 men in G-1 referred to each other as B (bottom-right); they referred to the 2 men in G.0 as F (bottom-center); and to the single man in G+1 as FF (bottom-left). Next, the men in G.0 (at the left margin) referred to those in G-1 as S (center-right) and to those in G.0 as B (center). The man in G+1 referred to the men in G-1 as SS (upper-right). All pairs (with some trivial variations) agree with each other, and are mutually consistent across the Table.

Mura R22		Men					
GenLevel		G+1	G.0		G-1		
Country#		C73	C43	C42	C43	C43	C81
ID#		014	013	017	037	042	031
G+1	014	24 Self	16 S	6 F	1 SS	1 SS	2 ZDS
G.0	013	6 F	24 Self	10 EB	16 S	16 S	16 S
	017	16 S	12 YB	24 Self	19 ZDH	16 S	16 S
G-1	037	1 FF	6 F	19 WMB	24 Self	12 YB	10 EB
	042	1 FF	6 F	6 F	10 EB	24 Self	10 EB
	031	2 MMB	6 F	6 F	10 EB	10 EB	24 Self

Key to Table 6.8.

Columns: Sex: Men only
Subcolumn1: Generation levels: G+1, G.0, G-1
Subcolumn2: Country #
Subcolumn3: ID#
Cell entries: Numeric kinship term code (e.g. 6) + alphabetic abbreviation of minimal kinship term gloss (e.g., F); thus 6=F.
Kinship terms: Key to kinship terms appears in Appendix 3

Table 6.8. Kinship term applications among men affiliated with mura R22.

But a puzzling pair is printed in red: ♂013 and ♂017 referred to each other as brothers (G.0 by G.0), but they disagreed with regard to ♂014 in G+1: ♂013 referred to ♂014 as F, ♂013's S ♂037 referred to ♂014 as FF, and ♂014 reciprocated appropriately, all of which seem to be correct. However ♂017 referred to ♂014 as S, and ♂014 refers to ♂017 as F. In this case alone, ♂017 and ♂014 used the appropriate pair of reciprocal terms (F-S) but they did so in the "wrong direction". I have no explanation.

Except for the single "error" printed in red, Table 6.8 indicates that members of mura R22 might constitute a promising example of a classical horde – I tentatively call it "horde R22" - following Hiatt's (1962:267-268) summary of Radcliffe-Brown's definition. But problems appear quickly.

First, consider men in Table 6.8 who were affiliated with the mura but were not members of C43.

a) ♂031 of C81 resided in mura R22 and was a distant classificatory S of ♂013. If we accept him into the hypothetical "horde R22", that group had members from two Countries, C43 and C81, thereby violating the stipulation that such a group was based

on membership within a single Country. But if we reject him, we reject classificatory kinship as an organizing principle here. Given the importance of classificatory kinship throughout Aboriginal Australia, such as exclusion seems to be unacceptable. I accept ♂031 as a member of "horde R22".

b) ♂017 of C42 resided in mura R22 and was a classificatory B of ♂013. If we focused on his Country membership, we would reject him; if we focused on his *de facto* membership in the mura, we would accept him in further violation of the single-Country stipulation. I accept ♂017 as a member of "horde R22".

c) ♂014 of C73 resided in ngundya R11. He was a respected blind widower who was ♂013's classificatory F, and was classificatory FF to ♂037 who was a S of ♂013. Also ♂014 was classificatory FF of ♂056, the first young man scheduled to be initiated when this murelgwa formed. I accept ♂014 as a member of "horde R22".

Thus Table 6.8 contains 6 men who were members of 4 Countries: 3 men were biological kin, 3 were classificatory kin. The kinship term applications displayed here show that these 6 men did indeed constitute a group resembling a classical horde, but only if we a) accepted classificatory relationships, and b) disregarded the fact that classificatory relations yield systematic violations of the single-Country stipulation.

Now consider men who were *not* in Table 6.8 but might have been.

d) ♂045 of C43, a full-S of ♂013, lived in mura R25 with his wife in their anoardegan that was adjacent to his W's parents. With ♂045 living uxorilocally, ♂013's proposed horde R22 would not correspond to a single mura. I omit ♂045 from membership in "horde R22".

e) ♂021, a full-BS of ♂013 and a member of C43, lived in mura R21. As a member of C43 he was a default member of the proposed horde R22, but as a resident of mura 21, his membership would be problematic. I omit ♂021 from "horde R22".

f) ♂009 was a member of C42 and resided in R21. He was a classificatory B of ♂013 and a full-B of ♂017, both of whom resided in mura R22. He might be recognized as a member of R21 because that was where he lived, or a member of R22 on the grounds that his biological and classificatory Bs lived in R22. The decision was not easy, but for didactic purposes I omit ♂009 from membership in "horde R22", in part because including him raises questions about relations between Countries C42 and C43 that I will avoid now.

I believe that my decisions to accept or omit various people as "members" of muras R21 and R22 (and the proposed horde R22) are defensible, but I know that they are arbitrary and capricious. Had I mapped and censused murelgwa Gurlanda a few days earlier or later, I

would have found significant differences in these highly flexible residency patterns. ♂013, plus his biological sons and his classificatory F, B and S constituted an amorphous residential group whose membership was ever-changing, with some individuals and families arriving and others departing on a daily, weekly or monthly basis.

The genealogical diagram of mura R22 shows that the families in this mura corresponded imperfectly to Radcliffe-Brown's idea of a horde, and I concluded that it was not "really" a horde. Nevertheless it is an especially close-knit family, with three of the MBD marriages from the structural core of Alyawarra society being located in this mura.

Table 6.3, column 5, shows 1 directed marriage cycle (MBDDD) among the 6 marriages in mura R21 (1/6 = 16.6%), 10 cycles out of 15 marriages in mura R23-R25 (10/15=66.6%), and 5 cycles out of 7 marriages in both mura R22 and mura R24 (5/7 = 71.4%). An astute observer would be likely to notice the relatively high frequency of these cycles in muras R22 through R25, but a less astute observer might fail to notice the single cycle in mura R21. I do not know why muras R22-25 had very high frequencies of directed marriage cycles (66 to 71%) and mura R21 had a frequency of only 16%.

Summary – mura R22. Here cross-linkages between muras R21 and R22 provide some information on conflict management. The apparent error in the reciprocal kinship terms used by ♂014 and ♂017 is intriguing. The complex relationships among men centered on ♂013 provide a number of arguments for and against seeing mura R22 as a classic horde; I concluded that R22's differences from a horde outweighed its similarities, and disqualified it from being classified as such. In sharp contrast to mura R21 in which an exceptionally low 16% of the marriages were relinked, the rest of the muras including mura R22 had an exceptionally high 70% of their marriages relinked. Perhaps above average values for most of these mura were related to the identities of the young men to be initiated, but I have no data to support this suspicion.

Mura R23-R25: genealogy, topography and Country locations. This composite mura had 33 residents (10♂, 23♀) living in 12 residences, and was the largest residential unit at Gurlanda. I treat R23 and R25 as a single unit here because R23 was very small with only 2 residents, had no affiliated anoardegans and was located adjacent to R25. More importantly, the pair of widowed full-Z (♀153, ♀163) who lived in R23 were linked through their deceased FB to widow ♀151 and her full-Z ♀150, who were the eldest members of alugera R25.

The 10 men living in mura R25 belonged to 5 Countries and 3 generation levels. 4 men who were members of C38 belonged to the same section and were biological or classificatory B, but did not constitute a F-S descent line. 3 men who belonged to C58 were B but were not genealogically related to anybody else in the mura.

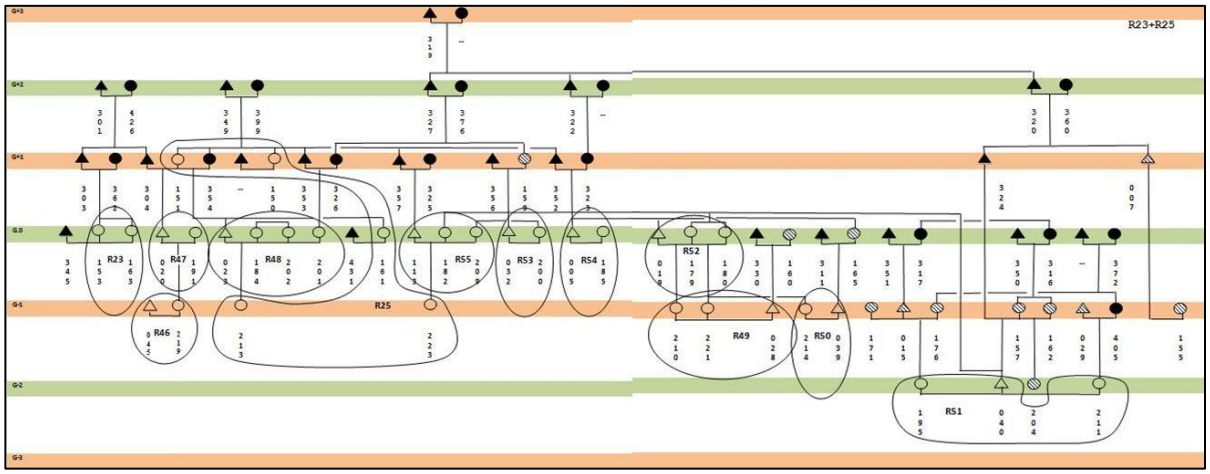


Figure 6.4. Genealogical diagram, Gurlanda alugera R23+R25, 14 September 1971.
See Figure 6.2 for Key.

The distribution of the anoardegans in this mura suggests that men of C38 were loosely grouped northeast of the alugera and men of C58 to the west of it. Likewise, the pair of full-Z (♀153, ♀163) living in R23 belonged to C58 which was near the C58 anoardegans, and the pair of full-Z (♀150, ♀151) living in R25 belonged to C38 which was near the C38 anoardegans. ♂045, who lived uxorilocally with his W ♀219 and her parents ♂020 and ♀191, was separated from his F and B who live in R22. The clusters of men and women of same and different Countries who lived in this and other muras do not support the notion that men remained in their muras permanently while their sisters departed upon marriage.

The data reviewed in the preceding paragraphs raises questions about the segmentation of four of the muras, and the positioning of Countries when encampments are established. Topographic Countries C42 and C43 were located adjacent to each other between the Sandover and Bundey Rivers, and their respective muras R21 and R22 were located adjacent to each other at Gurlanda, alugera R21 being due west of the ngundya R11 and alugera R22 due east. The group composition data concerning the two Countries at muras 23-25 could pertain to a single mura with two constituent sub-muras, to two separate muras that have a "binary" alugera, or to a pair of muras undergoing either fission or fusion.

Ambiguous relationships such as these may underlie the common reporting of clean signals in the midst of noisy data. Consider the common assertion that the layout of a large Aboriginal camp such as a murelgwa often reflected the topographical or geographical distribution of the Countries represented in the camp's population. For example, people from a Country that was located to the northwest of the murelgwa were expected to locate their mura in the northwestern quadrant of the murelgwa, and so on.

Figure 6.3a shows the geographical distribution of the Countries represented by people living at Gurlanda. In order to protect Aboriginal privacy, these symbols are not precisely located with regard to latitude and longitude, nor are they precisely located relative to each other. But in general they yield a kind of "artist's impression" of the distribution of Countries near the center of traditional Alyawarra territory.

Figure 6.3b shows one possible distribution of the mura that corresponded to the Countries in Figure 6.3a. In preparing it, my effort to generate a clean signal was hampered seriously by many factors including but not limited to the following: a) several Countries had representatives living in more than 1 mura; b) married men and married women of a single Country sometimes lived in the same mura; c) conceptual boundaries around muras were imprecise; d) alternative ways to "process" people included doing it computationally (married men only, married women only, marital pairs only, etc.) and doing it impressionistically (selectively over- and under-emphasizing various features to extract plausible patterns from a highly ambiguous situation). By using an artistic slight-of-hand, I could trim off or filter out problematic data, thereby converting complex and imprecise patterns into clear-cut – albeit classificatory - patrilineal descent groups. I might argue that simplification of this sort eliminates most of the "noise" and leaves a "clean signal", but an alternative interpretation is that it filters out rich, important data and leaves a stereotype. Either way, the Country with the loudest spokesman or the largest number of members may be reported as "the Country" to which the group belonged, and the other Countries, having been trimmed or filtered, may have been either explained away or ignored.

The end product in this case was an imprecise but nonetheless barely plausible match of the distribution of muras in Figure 6.5b to the distribution of Countries in Figure 6.5a. The procedure began with folding classificatory kin into a related Country, thereby reducing the number of Countries. The enhanced Countries C42 and C43 were adjacent to each other near the center of the distribution of Countries in Figure 6.3a, and the muras in which members of those Countries generally resided were *adjacent to each other* near the center of Gurlanda in Figure 6.3b. C15 and C31 were in the northwestern part of the territory in Figure 6.3a and in the southwestern part of Gurlanda in Figure 6.3b, but in both cases they were *in the west*.

C38 was in the northeastern corner of Figures 6.5a and 6.5b. C58 was *near the center* of Figure 6.5a and *toward the center* of Figure 6.5b. Note the good correspondence between the distribution of the muras in Figure 6.5b and the distribution of the Countries in Figure 6.5a.

However, had I worked solely from the data in Table 6.3, I probably would have missed the target. I did not deliberately distort the maps, but the ambiguity of the mura memberships in Figure 6.5b allowed me to adjust my emphasis on those numerical patterns until my picture of the mura came close to matching my map of the Countries. I seriously doubt that my use of such a procedure – deliberately or accidentally - is unprecedented in Australian Aboriginal ethnography. A harsh critic might see this as poor science that verges on poetry; a gentle critic might defend it as the best "science" we can do under difficult conditions.

Figure 6.5a. Countries represented in Gurlanda.

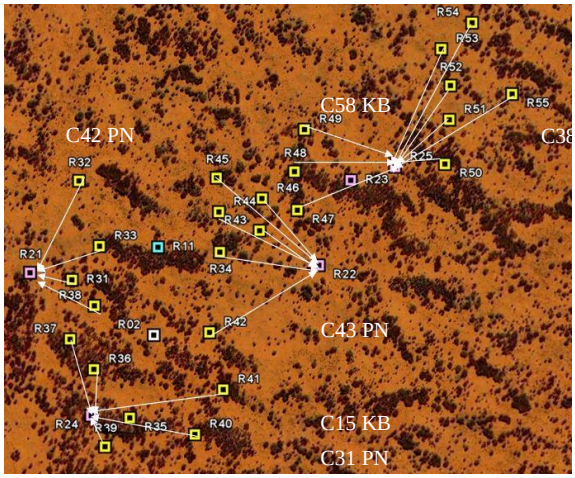


Figure 6.5b. Locations of corresponding muras in murelgwa Gurlanda.

Summary - mura R23-R25. Here I address the relative locations of topographic Countries as they were distributed across the Sandover-Bundey basin and adjacent areas, and the relative positions of residences belonging to members of those Countries within murelgwa Gurlanda. As a cautionary exercise, I suggest that it is difficult to evaluate the extent to which these two sets of patterns are different, similar, analogous or isomorphic in Aboriginal societies across the continent and through the ethnographic and historical records. I indicate some of the reasons for my concerns, including the normal human propensity to "see what we want to see", to let our expectations (theories) shape our perceptions. Finally I attempt to demonstrate some of the ways in which this problem may have interfered with my attempts to make sense of my Alyawarra data. Presumably it could happen to others as well.

Mura R24: genealogy and the absence of gerontocracy. The mura in Figure 6.11 had 19 residents (6♂, 13♀) living in 7 residences.

Adjacent generation level marriages were absent among the Alyawarra, but Figure 6.6 features 4 alternate generation level marriages. In G+1, 2 living men (♂007, ♂012) and 1 deceased man (♂324) were married to women of G-1; in G.0, 1 living man (♂026) was married to a pair of full-Z in G-2. All three men in G+1 were direct patrilineal descendants of ♂319 in G+3. The incomplete genealogies do not show how these men were related to their wives before marriage. I do not know why all of these men married women in the same alternate generation level.

Marriages that skipped a generation between partners compensated for and contributed to the 14+ year W<H age bias. Europeans – including anthropologists – have incorrectly interpret these marriages as gerontocratic, a term whose usual connotation is that old men take nubile young women as wives in polygynous marriages, thereby abusing their power as elders and preventing young men from marrying at an age when European men would marry. The interpretation might be plausible, even correct, if the events occurred in a European setting.

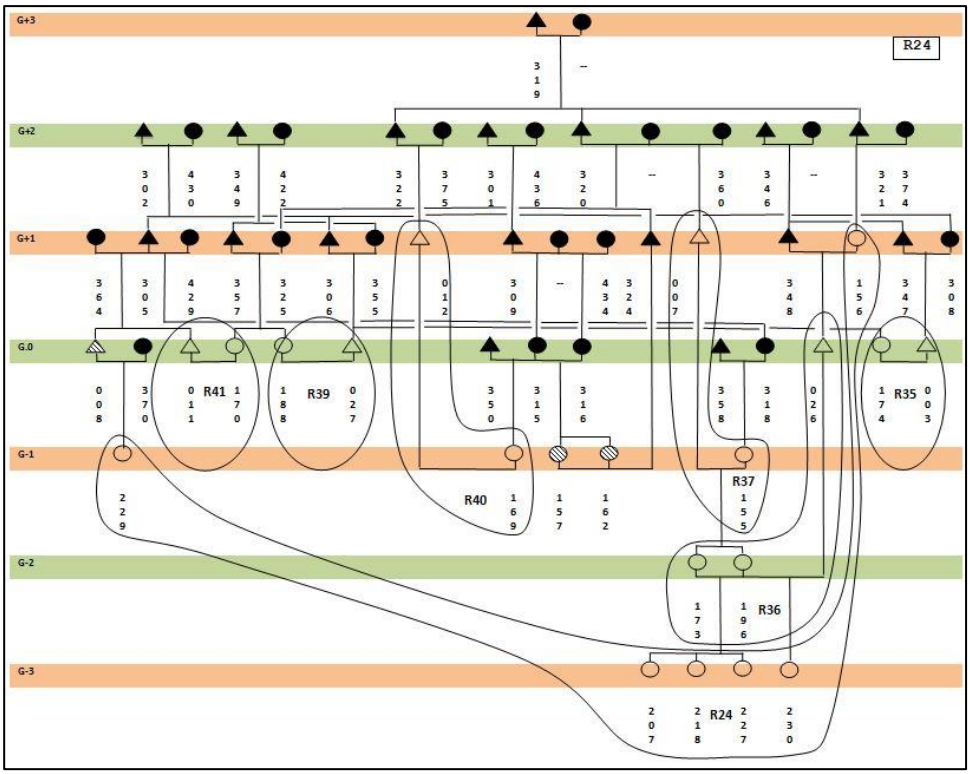


Figure 6.6. Genealogical diagram, Gurlanda alugera R24, 14 September 1971. See Figure 2 for Key.

But the interpretation is ethnocentric in an Alyawarra setting. A superior interpretation is that young Aboriginal men, their lives shaped in part by the *tualcha mura* custom (Spencer and Gillen 1899:558-560, Guhr 1963, Denham 2012) or something like it, must complete many years of intensive training in the Dreamings before they become eligible to marry. It is not a matter of competition and exploitation of the young by the old as cynical Europeans see it. Rather it is a matter of moving averages in which virtually all younger men postpone marriage until they are at least 28 years old, virtually all of their older brothers marry the young women - thus "taking care of them" in the Dreaming sense as defined above - until their younger brothers are old enough to marry, and the younger men eventually assume those duties relative to their own younger brothers and their potential wives. The relations work smoothly in the context of two endless age-biased generations, but not at all in the context of stacked, discrete, disjointed generations. The matter does not reflect abuse of power by old men, but is based on scheduling, cooperation and adherence to ancestral Law. Having a fling with a young man might be great fun for a young woman, but traditionally marrying was serious business and no young woman in her right mind would voluntarily marry a young man before he had completed the vital early segment of his education in the massive knowledge-base that enabled him to own the Dreamings of his FF and boss the Dreamings of his MF.

Summary - mura R24. This case study has three main features. The adult women (no little girls included) who lived in alugera R24 spanned five consecutive generations, the oldest being in G+1, the youngest in G-3. The genealogical diagram in Figure 6.6 shows an exceptionally high concentration of alternate generation marriages; viz, 3 out of 6 marriages among living people, plus one more among deceased ancestors. Marriages like these have contributed to misguided speculation about "gerontocracy", but I argue that they were symptomatic of cooperation rather than competition and had far more to do with acquiring the knowledge needed to own and boss the Dreamings than with experiencing the joys of sex.

Conclusion. It appears that the social organization of women at Liladera and Gurlanda is best viewed matrilineally, matrilocally or matrifocally at the level of individual muras, with old women, their middle-aged daughters and their young granddaughters often at the center of mura-like clusters, together exercising much more control of day-to-day social organization than male estate ideology and associated ceremonial patterns reflect (Memmott 2014 p.c., Bell 1993, Keys 1999, Musharbash 2003). Likewise it seems that the social organization of men ranged from that of mura R22 which, if depicted cautiously, might almost pass for Radcliffe-Brown's traditional horde, to more amorphous clusters in the other

muras, to heterogeneity based on multiple classificatory relations with no clear structure among members of the ngundya as a whole.

I suggest that whatever we see in these data fails to qualify as patrilocality or matrilocality in the ordinary or idealistic sense in which those terms have been used in the anthropological literature for the last century or so. What we actually see is far more complex than those simplistic notions lead us to expect. Austin-Broos (2003:121) says it well: "The status that young men derive from their patrilineal ritual ties tends to strengthen patrifiliation, whereas the hearth-keeping role of women tends to strengthen matrifiliation". Additional examples of the complexity described here appear in O'Connell's (1977:111-114) description of the social organization of murelgwa Bendaijerem in 1974, and comparable Alyawarra data reaching back into the 19th century (Denham 2010b) are not significantly different from observations in the 1970s.

The genealogical matrifocality of women does not contradict the classificatory patrilocality of men that Aboriginal and White Australian male observers have often reported. Both are correct, but they are quite different. This issue remains problematic as Hill et al. (2011) recently demonstrated by failing to grasp the distinction between, and complementarity of, simultaneous genealogical matrilocality and classificatory patrilocality in the Alyawarra data. The reality is not "either-or", but is "both-and".

Perhaps patterns detected in large, aggregated camps such as GurlandaB3 can help us understand what we see in small, dispersed camps such as Liladera. For example, the Country structure associated with R26 (C15, C38, C58) in Liladera was nearly the same as that of R25 (C15, C38, C41, C58) in GurlandaB3. Generally speaking, mura Liladera had the same basic kind of structure as a neighborhood in murelgwa Gurlanda, but since it was visually isolated from the broader social matrix in which it was embedded, its complexity was less obvious. Viewed in the context of Gurlanda rather than as a freestanding entity, it appears to be just another mura with no remarkable features.

Networks of linkages between women within and among the five muras were numerous and complex, including 1 M-D cluster spanning 3 generations (♀Ego-M–MM) and 6 spanning 2 generations (♀Ego-M), 9 sets of 2, 3 or 4 Z, and 9 cases of biological or classificatory sororal polygyny. These data suggest that individual muras and the murelgwa as a whole resembled mura Liladera with regard to matrilocality or matrifocality as defined in various ways.

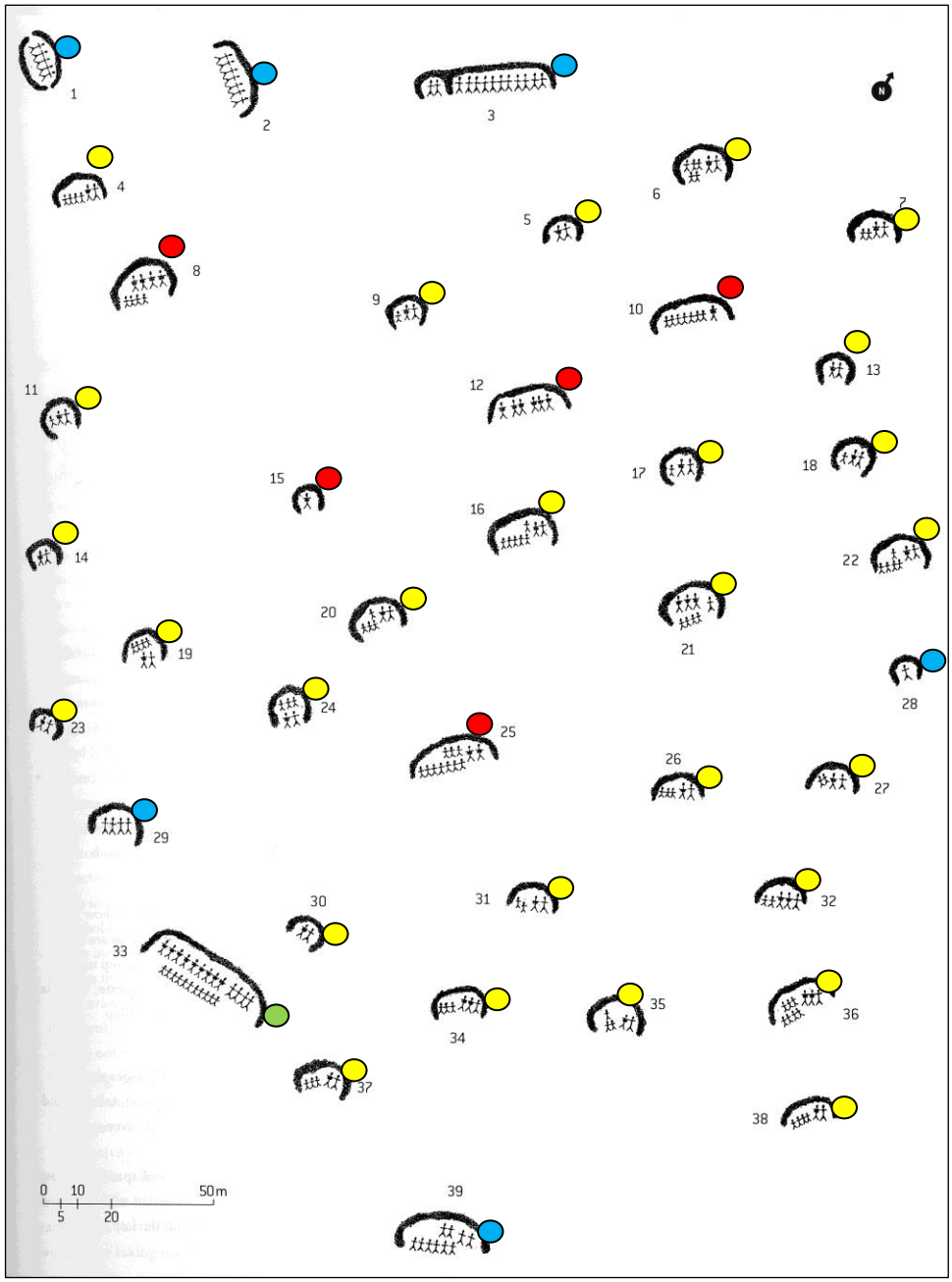
Normal statistical variations such as those described above are not analogous to "static" that should be filtered out. I suggest that the complexity depicted here in each mura separately and in all of them collectively is not evidence of rampant noise that is obscuring a possibly "pure signal" from a classical horde by that or any other name. If we reduce this blooming, buzzing confusion to some kind of elegant simplicity by filtering out the variability, we risk destroying the multidimensional reality that characterizes the society we seek to understand.

Comparison of Alyawarra with Pitjantjara

Figure 6.7 depicts a Pitjantjara initiation camp at Konapandi, Western Musgrave Ranges, SA/NT border, recorded in a field notebook by Tindale (1933) and published in revised form by Memmott (2007:29-30). Here I outline similarities and differences between Figure 6.7 Konapandi camp from 1933 and Figure 5.3 Gurlanda camp when initiations were in progress in 1971. These two camps were separated by 38 years and 700 km.

Notes indicate that Konapandi's camp population was 250-260 living in 42 residences, of which 3 residences were beyond the edge of this plan. There were 27 family residences resembling the 36 anoardegans at Gurlanda, 6 single men's residences resembling ungundyas, 5 single women's residences resembling alugeras, and 1 exceptional residence (#33) of unknown function whose residents included 4 men, 9 women and 11 children. 1 single men's residence had only 1 occupant, similar to R11 with 2 men at Gurlanda; 2 single women's residences had only one occupant each, similar to R25 occupied by only two widows at Gurlanda. 27 married men had a total of 32 wives, thus the polygyny rate was 1.18 wives per married man, somewhat lower than the rate of 1.44 at Gurlanda. Available notes do not indicate how Tindale categorized unmarried males and females (by age, marital status, etc.), but he included initiated, unmarried males in his data while I omitted them from my analysis of Gurlanda data. However 18 adult women lived full time at Gurlanda alugeras (2 more were parttime residents), while 14 adult women lived at Konapandi's single women's residences. Statistically the two camps are quite similar.

Gurlanda had 1 (sometimes 2) ngundyas but Konapandi had 6 single men's residences. Among the Alyawarra ngundyas from several mura merged to form one in the murelgwa; among the Pitjantjara single men's residences may have remained discrete when the aggregated camp formed. At Gurlanda the ngundya was centrally located and the constituent muras surrounded it; at Konapandi the six blue single men's residences, plus the exceptional residence 33, were distributed around the edges of the camp. In both camps the red single women's residences were scattered among the family residences across the interior of the camp. Beyond these there are no other obvious patterns in the distribution at



KEY: blue = single men, red = single women, yellow = families, residence 33 = a special group of relatives of the initiands; large stick figures denote anatomically correct adult men and women; small stick figures denote children of both sexes; one or two windbreaks enclose each residential group.

Figure 6.7. Pitjantjara initiation camp at Konapandi, Western Musgrave Ranges, SA/NT border, recorded by Tindale (1933) in a field notebook for June of that year (scanned and enhanced from Memmott 2007:30). (Tindale's caption, which says, "Shelters are oriented to shield people from southeast breezes", suggests that the North directional pointer should be rotated 180^0.)

Konapandi, but then there are no other obvious patterns in the distribution of residences at Gurlanda unless we know the genealogical and kinship relations linking individuals, residences and neighborhoods, relational data that are not available for Konapandi.

There is a possible problem in saying that either Konapandi or Gurlanda was an "initiation camp". That term suggests that the camp was purpose-built for initiations. Certainly Gurlanda was not a purpose-built initiation camp: it was occupied for months both before and after the initiations of 1971. We might be less willing to call Konapandi an initiation camp if we knew more about its occupancy before and after the initiations; perhaps it was a La Niña camp.

In a similar comparative vein, Stoll et al. (1979) published transcripts of conversations concerning residential group compositions among Aranda at Hermannsburg that strongly resemble what could have been recorded at Gurlanda. Likewise, informal descriptions by Bell (1993), Keys (1999, 2003) and Musharbash (2003, 2008) reveal striking similarities between Alyawarra alugeras at Gurlanda, and Warlpiri jilimis at Warrabri and Yuendumu. Similarly Hiatt's (1965) map of Maningrida shows "sub-camp cluster[s] based on language group identity" (Memmott 2007:121-122) that superficially resemble clusters of anoardegans in muras at murelgwa Gurlanda. The commonalities seen in these communities stand in sharp contrast to the much more formal and abstract patterns that often appear in other community plans so carefully reproduced by Memmott (2007:*passim*).

Certainly there are important differences between Gurlanda, Konapandi, Hermannsburg, Yuendumu and Maningrida, but their surface similarities are striking.

7. Diachronic group compositions

"Who lives with you?" depends on when and where you live when the question is asked. Asking the question as if "one size – or one answer - fits all" is meaningless.

Understanding Alyawarra residential group compositions at one place and time as in Part 6 is challenging in itself, but a greater value of the undertaking depends upon what it can contribute to our understanding of residential group compositions in a larger spatial and temporal context. Here I examine the data regionally and historically.

To record the data used here, I conducted 16 censuses covering 242 living members of the research population, including adults and children of all ages. Each person's census record includes the date of each census, the camp code or other location code (station, town, etc.) where the person spent the census day, and the residence code of the place where he or she

slept that night. All are integrated through the genealogical dataset. These 3000+ coded census data points enable me to track both residences and people, separately and together. Some of the data concerning people who were away from MacDonald Downs and Derry Downs on census days are based on a consensus reached by groups of men and women who assisted me in keeping track of everybody. Sometimes the consensus was: "don't know" (DK).

As I indicated earlier, this population sample was by no means the total Alyawarra population. I focused on the southern Alyawarra at MacDonald Downs and Derry Downs Stations, dealt to a lesser extent with those at Warrabri Settlement and Lake Nash Station, but omitted the northern Alyawarra in the Davenport-Murchison-Barkly-Avon Downs region.

While I was recording the data used here, I attended all possible events in the initiation of ♂056 and kept detailed notes throughout. However, I attended only some of the events in subsequent initiations, and did not attend most of the other events associated with related activities. Instead, assuming that such events had been recorded and photographed in great detail by other anthropologists, I focused on recording data that others missed, including census data used here.

Variations in camp sizes

O'Connell (1987:75) and others have noted that "By 1970, most Alyawarra were living in large, semipermanent settlements near European homesteads or on government reserves". I cannot disagree with that truism, but it is subject to a misleading interpretation: semipermanent settlements do not equate with semipermanent people. One part of the problem is that both "settlement" and "semipermanent" are devilishly difficult to define; another part is that by focusing on settlements rather than on people, it is all too easy to use the wrong unit of analysis. At the very least, Brownian-like motions of people within and among settlements occurred at a scale fundamentally different from that at which settlements relocated.

Table 7.1 shows the geographical distribution of 242 people on 16 census days at roughly 2-week intervals spanning 8.5 months. Rows labeled as "core" show the total population at each of the 4 central camps at MacDonald Downs (MDD1 Gurlanda, MDD2 Bendaijerem and MDD3 Liladera) and Derry Downs (DDN4 Angungera) on each census day. The remaining rows show the dispersion of other members of the research population on census days, with locations keyed directly to White Australian cultural features in Figure 3.1.

Population sizes of occupied core camps ranged from 10 to 208. These camps held 89.9% of the people on these 16 census days, and the inner and outer peripheral locations held the remaining 10.1%. The last 6 cells for MDD3 are empty because that camp was abandoned between the 10th and 11th censuses. Therefore the total number of camp censuses was [(16 x 4) – 6] = 58, including 2 other camps that were temporarily unoccupied on 2 other census days.

		C1 7.01	C2 7.15	C3 7.26	C4 8.14	C5* 8.19	C6 9.04	C7 9.28	C8 10.09	C9 11.03	C10 11.16	C11 12.07	C12 12.21	C13 1.15	C14 2.17	C15 3.03	C16 3.19	Row Total	Row Mean
Outer	EPN	0	0	0	0	0	0	0	0	0	1	1	0	1	0	0	0	3	0.19
	UTP	0	0	0	2	0	0	1	0	0	0	0	1	0	0	1	0	5	0.31
	MRD	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0.63
	WRB	0	0	0	0	0	0	4	4	4	0	0	0	0	0	0	0	12	0.75
Inner	ORT	0	0	0	0	0	0	0	0	0	0	0	0	18	0	0	0	18	1.13
	ELK	0	1	1	1	1	1	1	1	13	4	4	0	0	0	0	0	28	1.75
	AMR	0	0	0	0	0	0	2	7	6	6	0	9	0	6	3	2	41	2.56
	LKN	5	5	5	1	0	0	0	5	12	12	1	1	12	17	19	17	112	7.00
Core	DDN4	31	37	37	113	11	19	20	19	13	0	88	73	24	37	42	31	595	37.19
	MDD1	82	100	100	72	208	32	154	118	134	62	88	77	73	74	97	78	1549	96.81
	MDD2	86	65	65	30	0	176	16	54	27	29	54	73	49	67	61	96	948	59.25
	MDD3	27	27	27	18	16	11	32	26	10	128	0**	0	0	0	0	0	322	20.13
Inner	ALC	0	0	0	0	0	0	0	0	12	0	0	0	0	0	0	0	12	0.75
	DNP	0	0	0	0	0	0	2		5	0	0	0	0	1	1	0	9	0.56
	HRP	0	0	0	0	0	0	2	3	0	0	0	0	0	0	0	0	5	0.31
	MRQ	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	2	0.13
Outer	STM	0	0	0	0	0	0	0	0	0	0	0	0	46	27	8	10	91	5.69
	ASP	0	0	0	0	1	0	7	4	0	0	3	2	12	5	3	0	37	2.31
	Column Subtotal	231	235	235	235	237	239	241	242	236	241	238	235	234	234	234	235		
	Unborn	4	4	4	4	4	3	0	0	0	0	0	0	0	0	0	0		
	Deceased	0	0	0	0	0	0	0	0	0	0	3**	3	3	3	3	3		
	DK	7	3	3	1	1	0	0	0	6	0	0	3	4	5	4	4	41	
	Column Total	242	242	242	240	242	242	242	242	242	241	238	241	241	242	241	242	3872	

Key to Table 7.1

Column headers: Censuses C1 – C16 with dates of each, 1 July 71 – 19 March 72
Columns at right margin: Row Total and Row Mean summarize the contents of the table.
Row labels (see Appendix for key to all location abbreviations / codes)
Central: 4 camps at MacDonald and Derry Downs MDD1=Gurlanda, MDD2=Bendaijerem, MDD3=Liladera, DDN4=Angungera
Inner: locations near but outside the central cluster
Outer: locations more remote from the central cluster
Unborn, deceased, unknown: uncounted people and locations
Column Total: approximately 242 people accounted for in each census
**** Marker:** occurrence of deaths

Table 7.1. Rows labeled as "core" show the population at each of 4 Alyawarra camps on each census day. Other rows show the dispersion of the rest of the research population on each census day.

Figure 7.1 displays three groupings of population sizes, in effect a trimodal distribution. At the bottom of the size scale, in camps ranging from 0 to 50 people, I censused 29 small camps consisting of a single mura or a pair of closely related muras with a mean size of 24.07 people, a surprisingly close approximation to the "magic number" of 25 so often used in discussions of hunter-gatherer camp populations. However, this cluster contains only one-half of the 58 camps in the entire sample, so it is by no means representative of the population as a whole.

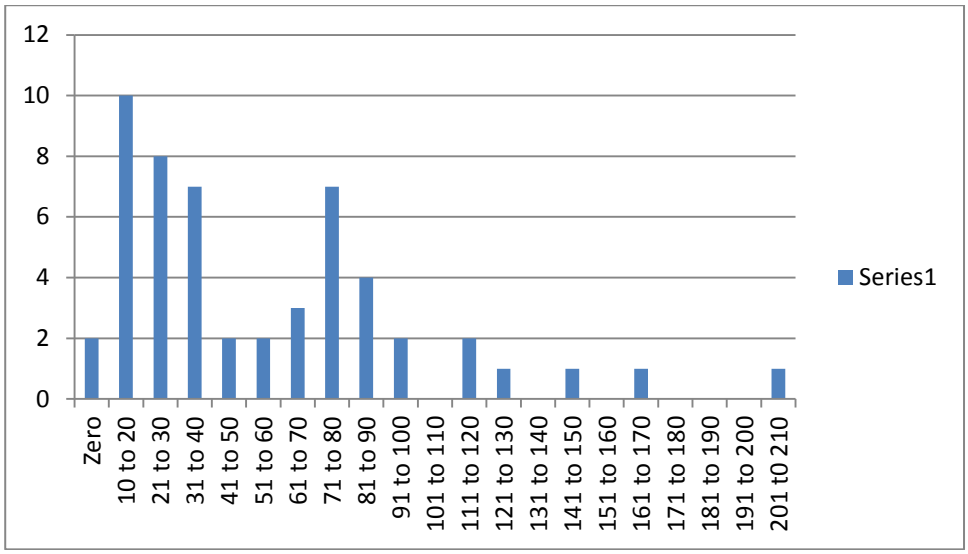


Figure 7.1. Number of camps by population size.

At the middle of the size scale, in camps ranging from 51 to 100 people, I censused 22 murelgwa of intermediate size (mean = 76.59) that occurred in conjunction with events of some interest but of modest importance (minor traditional ceremonies, distribution of a few extra rations at European holidays, showing of a film, etc.) At the top of the scale, in camps ranging from 101 to 208 people, I censused a small cluster of the 6 largest murelgwa (mean = 147.29) that formed in response to major ceremonies such as initiations and increase events.

The camps that I censused repeatedly were directly interconnected with each other structurally and shared the same 242 people through space and time. Thus attempts to avoid autocorrelation, or Galton's Problem (Dow, Burton, White and Reitz 1984), would fail. However, since these are exploratory rather than explanatory statistics, this is not a fatal flaw in the research.

Figure 7.2 illustrates the scheduling of events that yielded striking irregularities of camp sizes through time. Censuses #1-3 revealed considerable stability in the sizes of all four camps, Gurlanda and Bendaijerem being the larger, Angungera and Liladera being the smaller. At census #4, over 100 people congregated at Angungera in preparation for the series of initiations scheduled to begin shortly. At census #5, 208 people congregated at Gurlanda for the first initiation and the other camps were virtually empty. At census #6, 176 of the people were at Bendaijerem for an increase ceremony linked to the initiation that had

just ended. At census #7, Gurlanda's population rebounded to 154 and remained more-or-less constant between 134 and 154 through census #9 while more initiations were in progress. At census #10, 128 people were at Liladera for another increase ceremony linked to the latest initiation.

During the interval between censuses #10 and 11, three senior members of the population died and all of the camps were seriously disrupted by the abandonment of residences and movements of people within and between camps. That disruption is clearly reflected at census #11 by which time Liladera had been abandoned and Angungera had offered temporary refuge for many who left Liladera. Censuses #12 through 16 show that Liladera remained abandoned, while the other camps again revealed the size stability that they showed at censuses #1 through 3. However, Table 7.1 reveals a temporary decline in the total population of the central camps with the departure at census #13 of 58 people to attend initiations and related ceremonies at Santa Theresa Mission and Alice Springs (Mac Chalmers took all of them directly to Santa Theresa in a cattle transporter), and a smaller but more enduring decline when about 18 people moved to Lake Nash Station as a result of the deaths.

Censuses #1-3 and #12-16 occurred during "ordinary time", while censuses #4-10 occurred during "initiation time" (my terms). The ceremonies and related activities that occurred during "initiation time" already had been planned before I began my fieldwork, as had the approximate time for beginning the initiations. Furthermore the fact that I did not attend or participate in most of the events from census #6 through census #10 suggests that my presence was not a major influence on their content or timing. To the best of my ability, I remained an interested if somewhat remote outside observer, trying to the best of my ability to see what would have happened if I had not been there. I could not make myself invisible, but I tried. The result, I believe, is that the events of "initiation time" would have happened more or less as they did even if I had not been there.

The extreme fluctuation of camp sizes at censuses #4 through #11 was qualitatively different from the stability seen before and after in "ordinary time", but it was nonetheless a predictable, recurring pattern among the Alyawarra. To the best of my knowledge, it was an example of normal Alyawarra behavior during the months of September through November in a La Niña year, fully analogous to the events that might have occurred in previous decades during a "good time" in an El Niño - La Niña climatic cycle. However, the three deaths that occurred shortly before census #11 may have unexpectedly terminated this "initiation time".

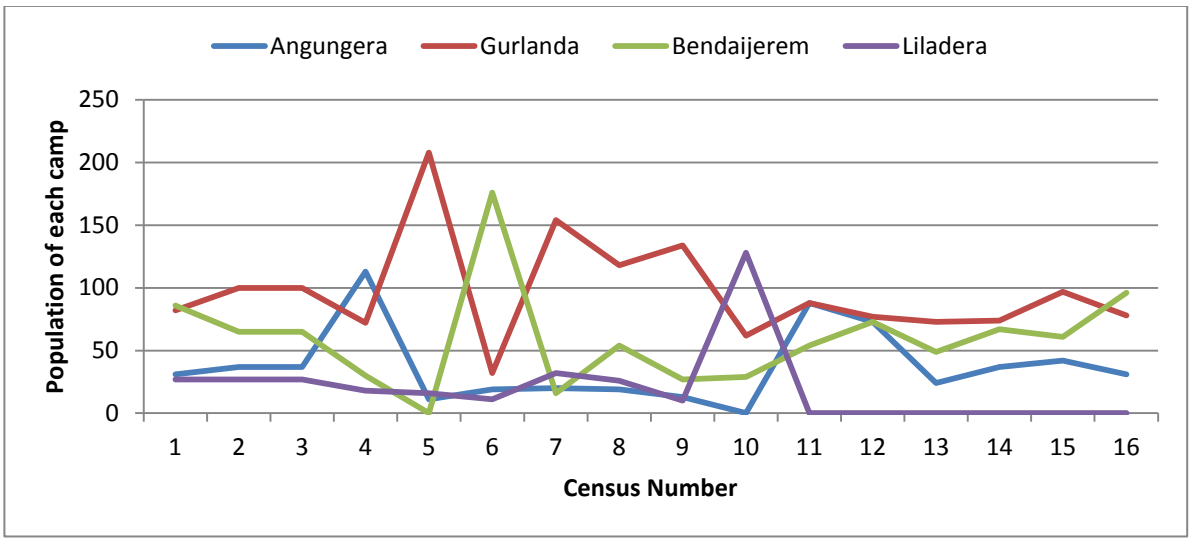


Figure 7.2. Variations in population sizes of 16 camps at 2-week intervals spanning 8.5 months.

Mobility by sex, age and marital status

It is commonly acknowledged that members of traditional Aboriginal societies were highly mobile in comparison with members of sedentary societies, and some work has been done toward measuring their mobility (Hamilton 1987, N. Peterson 2000, 2004, Musharbash 2003:117-138). My objective here is to contribute to that effort by comparing the relative frequency of occurrence of residence changes (RC) and camp changes (CC) among contrasting sets of people (males vs. females, married men vs. married women, younger vs. older, etc.) to better understand which groups were more or less mobile among the Alyawarra in 1971.

Although camps were semi-sedentary, individual people, nuclear families and residences tended to be much more mobile, some relocating on a time scale measurable in months, others on a weekly or daily scale. Here I disregard the periodic relocation of camps and act as if the camps were stationary. Exploring high residential mobility against this arbitrarily fixed background, I examine the movements of individual people and their individual residences among the camps at and near MacDonald Downs.[13] Since these movements often were associated with food acquisition (hunting, foraging, collecting rations), seeking health care, attending ceremonies, visiting relatives and friends, etc., I suggest that many of them were functionally equivalent or analogous to – but certainly not identical with - normal activities of daily living prior to colonization. Once again I emphasize similarities and continuities where others might emphasize dissimilarities and discontinuities.

[13] Musharbash (2008:59-76) deals with comparable behavior on mobility at Yuendumu in 1999-2001.

Column #→	1	2	3	4	5	6	7	8	9	10
Row #↓	Sex	MarStat	# cases	RC	CC	Sex	MarStat	# cases	RC	CC
1	1	10	2	5.00	5.00	2	10	13	1.23	2.62
2	1	5-7	37	1.65	6.11	2	5-6-7	47	0.68	5.53
3	1	3	28	9.00	8.96	2	3	13	0.92	2.00
4	1	1	49	0.67	6.49	2	1	44	0.95	5.48
5	C-Total (sum of means):		N=116	16.32	26.56	C-Total (sum of means):		N=117	3.78	15.63
	Men					Women				

Key to Table 7.2:

Sex: 1=male, 2=female.
MarStat: Marital status: 10=widow/widower; 5-7=married; 3=never married adults; 1=unmarried children.
 # cases: number of people in each sex-by-marital-status category for whom data is available.
RC: mean number of **r**esidence **c**hanges during 16 censuses by members of each category.
CC: mean number of **c**amp **c**hanges during 16 censuses by members of each category.

Table 7.2. Mean number of Residence Changes (RC) and Camp Changes (CC) made by 233 people.

To construct Table 7.2, I extracted mobility patterns from the raw census data table by comparing each adjacent pair of data points. When an individual appeared in the same camp and the same residence on two consecutive census days, I counted that as "no change". When an individual appeared on the second census day in a camp (or cattle station or town) that was different from the one on the previous census day, I counted that as a "Camp Change". When an individual appeared on the second census day in a residence that was different from the one on the previous census day, I counted that as a "Residence Change". Camp and residence changes occurred separately or together, and every move impacted those who lived with you.

Table 7.2 is computationally simple, but its content is rich. As an exercise in exploratory data analysis, it shows tendencies but does not test hypotheses. The following examples suggest some of the analytical possibilities.

Overall, men were more likely than women to engage in residence and camp changes. Both males and females changed camps frequently in absolute terms, but in relative terms males were 1.7 times as likely as females to change camps. When married women changed camps, they generally did so with their husbands, but when married men changed camps they often left their wives at home and stayed over night at a ngundya in another camp. In relative terms, males were 4.3 times as likely as females to temporarily change their residences.

Row 5 Col 4, 9 RC: ♂/♀=16.32/3.78 = ♂4.3 times as frequent as ♀
Row 5 Col 5, 10 CC: ♂/♀=26.56/15.63 = ♂1.7 times as frequent as ♀

Unmarried men (widowers and unmarried young men) engaged most frequently in both residence and camp changes. In both groups, a move between ngundyas generally co-occurred with a corresponding move between camps, so RC ≈ CC.

Row 1	Col 4,5	Widowers: RC=5, CC=5
Row 3	Col 4,5	Unmarried young men: RC=9, CC=8.96

Also notice in Table 7.2 that young men (MarStat=3) were twice as likely to change residences as were widowers (MarStat=10), about 6 times more likely than married men (MarStat=4), and 10 times more likely than male children (MarStat=1). Thus making the transition from little boy to young man marked a radical increase in the mobility of males, but making the change from little girl to unmarried young woman yielded a slight decrease in mobility of females.

When husbands and wives changed camps together, they were more likely to take their sons with them and leave their daughters in their home camp at the alugera with the wife's biological and classificatory mothers and sisters. Thus residence changes were *less* frequent for sons than for daughters, while camp changes were *more* frequent for sons than for daughters.

Row 4	Col 4,9	RC: sons/daughters = 0.67/0.95 = 0.7 Sons 0.7 times as frequent as daughters
Row 5	Col 5,10	CC: sons/daughters = 6.49/5.48 = 1.18 Sons 1.18 times as frequent as daughters

All things considered, men were far more mobile than women. Furthermore, unmarried initiated men were the most mobile category and unmarried young women the least mobile. No doubt the mobility patterns in 1971-72 paralleled those that prevailed before 1923.

Deaths

The most obvious, sudden and dramatic events of concern here were the relocation, dispersion or abandonment of camps following the deaths of residents. I base my comments here on having witnessed the consequences of several deaths during my fieldwork at MacDonald Downs. When the person who died was an infant, the baby's parents, grandparents and a few neighbors tore down their urlyas and constructed replacements a few meters away, perhaps on the other side of the mura or murelgwa. When a senior man or woman died, the entire mura or murelgwa in which that person lived was torn down and abandoned and a new one was constructed.

Here I recount an incomplete historical sequence of events that occurred between mid-1970 and mid-1972. The locations mentioned here appear in Figure 5.1. Several months before I began my fieldwork, a murelgwa at Spinifex Bore was abandoned and a new murelgwa was established about 19 km away from it and about 0.8 km north of Johnno's Bore; I call the new location GurlandaA. Simultaneously, a smaller murelgwa beside the Bundey River was abandoned; some of its residents moved to Bendaijerem and some to the new GurlandaA.

Shortly before I began my fieldwork, GurlandaA was abandoned because of the accidental death of a child there and was re-established as GurlandaB about 0.8 km southwest of the same water supply at Johnno's Bore. Shortly after I arrived at GurlandaB, another child died; the murelgwa did not move, but two of its mura were destroyed and rebuilt on the opposite side of the murelgwa.

Several months later, three adults died at three locations within a period of a few weeks, and the whole population was seriously disrupted. An elderly man died at GurlandaB and the entire murelgwa was destroyed and re-established as GurlandaC about 0.8 km southeast of Johnno's Bore. A few days later, when a woman died at the new GurlandaC, the murelgwa as a whole remained in approximately the same location, but most of the residences were destroyed and reconstructed well away from the location of the residence of the deceased woman. And a few days after that event, a senior woman died at Liladera and that location was abandoned: some families moved to other locations at MacDonald and Derry Downs, several families moved to Lake Nash Station about 260 km away, and 58 people left MacDonald and Derry Downs temporarily to attend initiations at Santa Theresa Mission (Figure 7.2). Under these highly disruptive conditions, mura that had remained intact for extended periods moved collectively to another location together, or they separated as their constituent families joined other mura, thereby yielding widespread changes in who lived with whom (O'Connell 1987:88).

As has been noted by many writers in the past, this tradition yielded potentially insurmountable problems for Alyawarra and others who lived in pseudo-European style residences at Ampilatwatja Outstation (Figures 4.10 and 5.7) and many similar locations.

Language group exogamy, dispersion and migration

Marital dispersal as tabulated in Table 7.3 is a process by which individuals move from one place to another in conjunction with mating and marriage, a process that has major implications with regard to "who lives with you".

Tribal Blocks (see sources for definitions)	**Endogamous Marriages**	**Exogamous Marriages**	**Total Marriages**	**Percentage Exogamous**	**Fieldwork Sources and Dates**
Southwestern	80	10	90	11.1	**NBT 1938-39**
Southeastern	59	6	65	9.2	**NBT 1938-39**
Negritic with adjoining	119	31	150	20.7	**NBT 1938-39**
Central Negritic without adjoining	81	20	101	19.8	**NBT 1938-39**
Carpentarian	80	7	87	8.0	**NBT 1938-39**
Central	124	15	139	10.8	**NBT 1930-32**
Central (Ngalia 1931)	144	12	156	7.7	**NBT 1931+1951**
Northwestern+Western	394	62	456	14.1	**JBB+NBT 1952-1954**
Column subtotals	**1081**	**163**	**1244**	**13.1**	
Central (Alyawarra)	160	47	207	22.7	**WWD 1817-1979**
Column totals	**1241**	**210**	**1451**	**14.8**	

Table 7.3. Australian Aboriginal language group exogamy
Sources: 8 upper blocks NBT=(Tindale 1953), JBB=(Birdsell 1993); 1 lower block: WWD=(Denham 2014a), Northern Territory Administration census data for Alyawarra and neighboring groups 1952-1973 (Mackett 2005 p.c.), and (Moyle 1986). Problems with Column 1: "Tribal block" and the row labels appear in the sources but are defined poorly. Consult the sources to identify the societies included in each so-called "tribal block".

Exogamy. Exogamous mating occurs generally in human societies around the world, often in nonhuman primate societies (Jack 2003), and among many other species as well. In Aboriginal Australia, it seems to have had two rather different motivating factors that worked together, one negative based on inbreeding avoidance, the other positive based on gaining access to remote resources. Given the universality of kinship in Aboriginal Australia, such dispersal generated regional or larger social and genetic networks (Birdsell 1993). It is reasonable to examine marriage networks that integrate societies locally, regionally and globally (Denham 2013a).

Table 7.3 tabulates data concerning Aboriginal language group exogamy continent-wide (see Denham 2013a for details). The subtotals for the upper 8 rows show that 13.1% of 1244 marriages reported by Tindale (1953) and Birdsell (1993) were exogamous, and 86.9% were endogamous. In the AU10 Alyawarra dataset reported in the penultimate row, 22.7% of 207 marriages were exogamous, and 77.3% were endogamous. Due to intrinsic problems associated with recording boundaries and conducting genealogical censuses, all of these numbers should be treated as estimates that may be less precise than the decimal points suggest. As I have demonstrated (Denham 2013a), societal exogamy seems to occur in about 7 to 22% (mean about 15%) of all marriages in Aboriginal Australia. Recent access to previously unpublished data (Sutton 2013, Dousset 2013, McConvell 2013) indicates that the frequency of occurrence of language group exogamy probably was significantly higher than 15%, and Memmott (2014 p.c.) speculates that "Inclusion of Northern Alyawarr people from the Alangkwe, Keranj, Anurrete, Ajilere/Jawe and Areyene estates that cluster in or around the Devenport Range would have established a stronger pattern of language group exogamy to the northwest, north and northeast with Warrumungu and Wakaya."

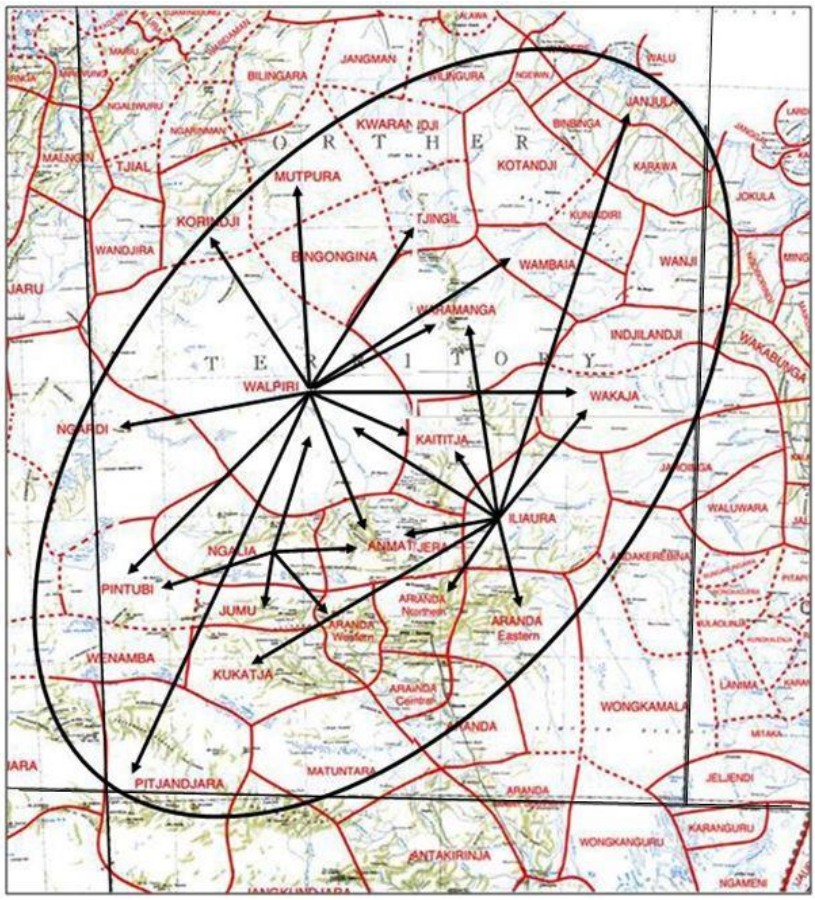


Figure 7.3. Representative distribution of societal exogamy in Central Australia.
Aboriginal language base map from Tindale (1974). Count code: #exogamous/#endogamous/#total. Ngalia 1931: 12/144/156=7.7% (Tindale 1953), Warlpiri 1953-55: no count available (Meggitt 1962); AU10 Alyawarra (Iliaura) 1817-1979: 47/160/207=22.7% (Denham 2014b). See Table 7.3 for breakdown of Alyawarra exogamy. Light vertical and horizontal black lines near left, right and lower margins are Northern Territory borders.

Figure 7.3 summarizes selected spatial data on societal exogamy in Central Australia. Two of the three datasets used in preparing this map show exogamy rates in the 7-22% range (no comparable quantitative data are available for the Warlpiri). This and other data presented in Denham (2013a) indicate that rates such as these in small-world networks yield very short paths interconnecting clusters of societies in this region.

Figures 7.4 and 7.5 are two images of the same phenomena, the first one a view from above, the second a view from the side.

Figure 7.4 is a top down view of the geographical distribution of Alyawarra marriages showing their relative frequency of occurrence in and near Alyawarra territory. It

summarizes Alyawarra data on intermarriage between descent moieties and among their constituent clans for 114 marriages from the AU01 Alyawarra dataset. Marriages entirely within the inner A ring are exclusively between Alyawarra, while marriages in which one spouse belongs to a Country outside the A ring but within the B ring (the periphery) represent language group exogamy within the "Alyawarra Nation".

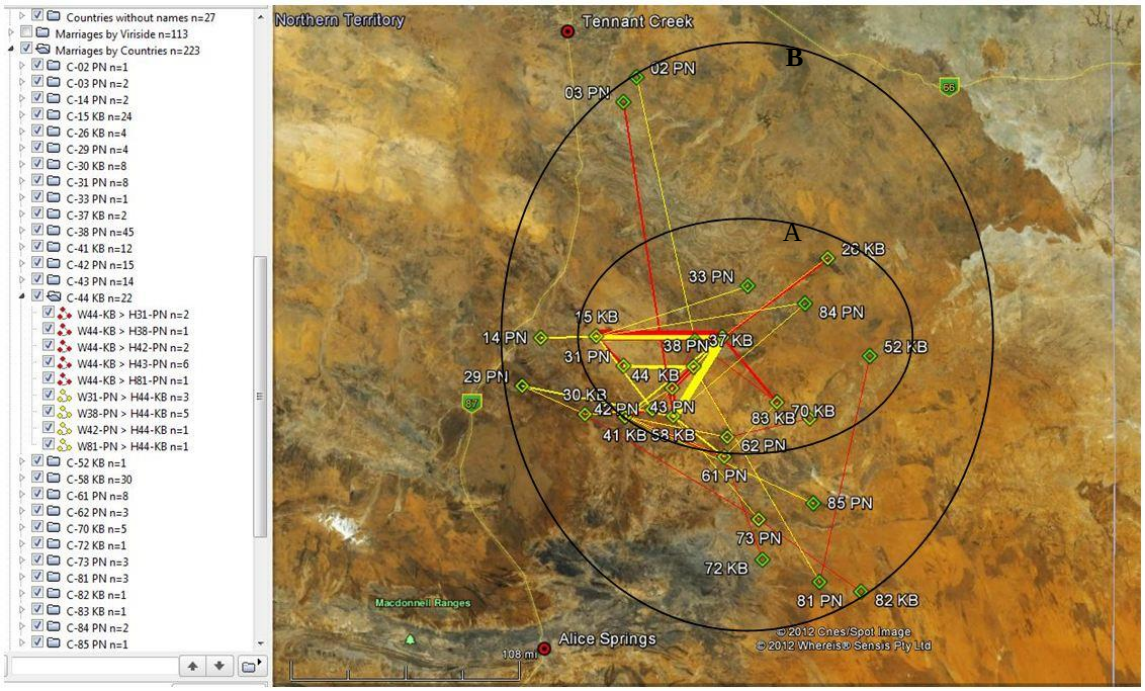
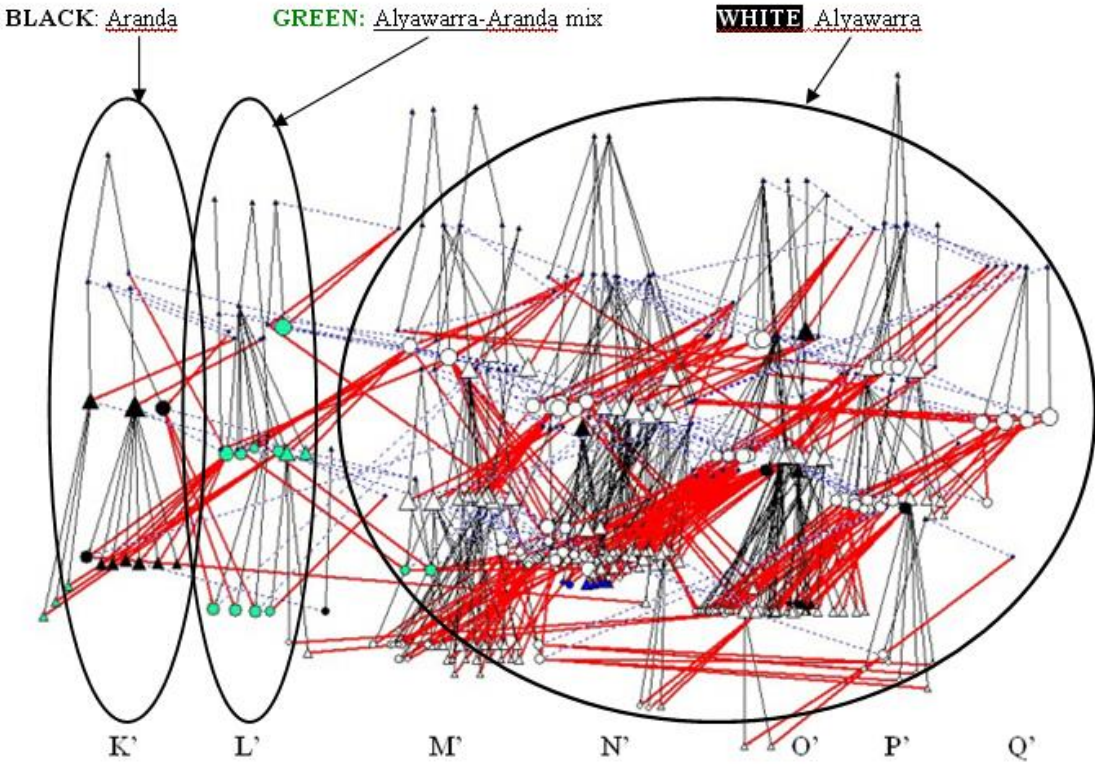


Figure 7.4. Marriages between Countries, AU01 Alyawarra dataset.
114 marriages. Green diamonds = Dreamings and Countries; nn = numeric code for Dreamings and Countries; aa = alphabetic patrimoiety code for Countries (KB, PN). Linkage color codes: red=men, yellow=women. Inside Ring A = endogamous region; between Rings A and B = exogamous periphery.

Figure 7.5 is a horizontal network visualization of the 114 marriages viewed vertically in Figure 7.4. Here I disregard the physical distribution of Countries. Procedures used to generate the Figure have been described in detail (Denham and White 2005, Denham 2012), and are not repeated here. While some aspects of this diagram are problematic as discussed elsewhere (Denham 2012), its interpretation here is straightforward. The large group of white symbols at the right of the figure corresponds to the Alyawarra inside ring A of Figure 7.4. The green cluster in the ellipse to their left represents children of marriages between Alyawarra and Aranda. The black cluster in the ellipse on the far left depicts Aranda who were married to Alyawarra, etc. In addition to these three larger clusters, there are smaller clusters or singletons scattered across the diagram whose societal affiliations are unclear

(blue symbols) or whose positions in the network are isolated from others of their own society.

The networks in Figures 7.4 and 7.5 show that the Alyawarra and Aranda populations were densely interconnected. The genealogy in Figure 7.5, with a depth of six 42-year patrilineal generations, shows that those interconnections were easily identifiable far back into the 19th century, hence are not products of mid-20th century disruption.



Key to Figure 7.5:

People: Δ = male, O = female
Language group membership of each person: white = Alyawarra, green = Alyawarra-Aranda mix, black = Aranda, blue = informants disagreed on language group affiliation
Linkages: solid black lines = father-child links (patridescent), solid red lines = mother-child links (matridescent), dotted blue lines = husband-wife links (generation moieties)
Vertical descent groups: K' = Aranda, L' = part-Alyawarra, M' through Q' = full-Alyawarra (alternate descent group codes 1-6, 0 explained in text).
Network: based on data from Denham (2014a), prepared by D.R. White (Denham and White 2005), featuring sibling sets generated with Pajek network analysis software (Batagelj & Mrvar 1998; de Nooy, Mrvar & Batagelj 2005).

Figure 7.5. Network patterns in Alyawarra marriage data

To a great extent, Alyawarra lived with other Alyawarra. However, Table 7.3, Figures 7.3 through 7.5, and additional data (Denham 2013a) indicate that the Alyawarra married

exogamously with Anmatjerra, Eastern, Northern and Western Aranda, Kaititja, Wailbri, Wakaya, Warramunga and Yanyula. Under these conditions, maintaining the organizational purity implied by language group endogamy would have been impossible traditionally. "Who lives with you" includes people from a great many neighboring societies.

Dispersion. Longstanding beliefs held that traditional Australian Aboriginal societies were endogamous, that residential groups such as mura were restricted to using the resources available in their own Countries, and that societal mixing under those conditions was rare or nonexistent. Yet observations of Aboriginal populations at government settlements and church missions in the 19th and early 20th centuries often showed that societal mixing – or at least the appearance of it - was extreme under those radically non-traditional conditions. It seemed to follow that societal mixing was one of the many harmful results of colonization, and that its apparent spread to cattle stations was a further symptom of collapse of traditional societies. What do the data say?

			Arandic languages				Non-Arandic languages					
Cluster	**Station↓**	**Language →**	***Anmatjira***	***Alyawarra***	***Aranda***	***Kaiditja***	**Luritja**	**Mudbara**	**Wailbri**	**DK**	**Row Total**	**Row %**
A	**Aileron**		**77**	2	-	-	1	-	-	-	80	
	Ti Tree		**50**	-	-	8	-	1	2	-	61	
	Woola		**8**	-	-	-	-	-	-	-	8	
	Yambah		**4**	-	2	-	4	1	-	3	14	
		Subtotal	**139**	2	2	8	5	2	2	3	**163**	**85.3**
B												
	MacDonald + Derry		-	**167**	19	-	-	-	-	-	186	
	Ooratippra		-	**17**	-	-	-	-	-	-	17	
		Subtotal	-	**184**	19	-	-	-	-	-	**203**	**90.6**
C	**Utopia**		4	9	**121**	4	-	-	-	-	138	
	Alcoota		-	-	**45**	3	-	-	-	-	48	
	Mt. Riddock		-	-	**26**	-	-	-	-	-	26	
	Lucy Creek		-	-	**19**	-	1	-	-	6	26	
	Waite River		1	3	**16**	-	-	-	-	-	20	
	Bushy Park		2	-	**5**	-	-	-	-	-	7	
	Tobermory		-	-	**2**	-	-	-	-	-	2	
		Subtotal	7	12	**234**	7	1	-	-	6	**267**	**87.6**
		Column Total	**146**	**198**	**255**	**15**	**6**	**2**	**2**	**9**	**633**	

Table 7.4. Pastoral station names and language group names sorted into geographical and linguistic clusters. Numbers in the cells show that the population of each cluster is dominated by one language group. Data from Bern (1969) collected 10 January - 24 April 1969, under El Niño conditions (Aug1968 - Jan 1970).

Historical data summarized in Table 7.4 is based on a Northern Territory Aboriginal population survey conducted by Bern (1969) between 10 January and 24 April 1969, during

an El Niño climatic phase (August 1968 - January 1970). It shows approximate sizes and language group compositions of Aboriginal populations who lived and worked at 13 of the cattle stations shown in the map of White Australian places in Figure 3.1. Bern's tabulation omits 14 stations encompassed by his survey that had no Aboriginal residents, and several populations that his survey did not encompass including those at Warrabri Settlement and Lake Nash Station which together had more than 200 Alyawarra residents. His data collection methods included both site visits and extraction of data from Welfare Branch records in Alice Springs. No doubt the data are imperfect, but they are the best I have found for the southern Alyawarra region at that time.

The synchronic pattern of dispersion among Aboriginal people on the cattle stations directly reflects the historical process of dispersal that is invisible here. Although we cannot watch the process unfold, we can ask whether it yielded fragmentation or coherence in the language group populations. Bern's report displays the results of his survey with cattle station names and language group names sorted in alphabetical order. As a result, the numbers in the cells appear to be distributed more or less randomly, and it may be plausible to interpret the pattern (or lack thereof) as evidence of detribalization: *post hoc ergo propter hoc*.

But Table 7.4 displays the results of the survey showing meaningful patterns among station names, language group names and population numbers. Cattle station names appear in 3 clusters of rows (A, B, C), while language group names appear in two major columns called Arandic (*Anmatjira, Alyawarra, Aranda,* and *Kaiditja)* and Non-Arandic languages. Numbers in the cells show that each cattle station cluster is occupied predominantly by members of a single language group.

- Station cluster A (northwest) …….. 139/163 = 85.3% Anmatjira.
- Station cluster B (northeast): …….. 184/203 = 90.6% Alyawarra.
- Station cluster C (southwest): ……. 234/267 = 87.6% Aranda.

Specifically, most members (85.3 to 90.6%) of each cluster belong to the same language group, but in each cluster 10-15% of the residents are not members of the predominant language group. It is at least interesting that the frequency of language group exogamy in Table 7.3 and the frequency of language group mixing in Table 7.4 are nearly identical.

Furthermore, the Column Total row shows that 146+198+255+15=614/633 = 97% of the Aboriginal people in this survey speak one of the Arandic languages as their primary language. In other words, each of the three clusters of rows is internally coherent, showing the degree of mixing that one would predict from the exogamy data, and the population as a

whole is highly coherent with 97% of its members speaking an Arandic language. From the perspective of Table 7.4, the dispersion of people appears to be a great deal more orderly than it does in Bern's original tabulation and it shows no disruption due to colonization. Rather, the marital and co-residential ties that bind all of these Arandic people together appear to have deep and persisting historical roots.

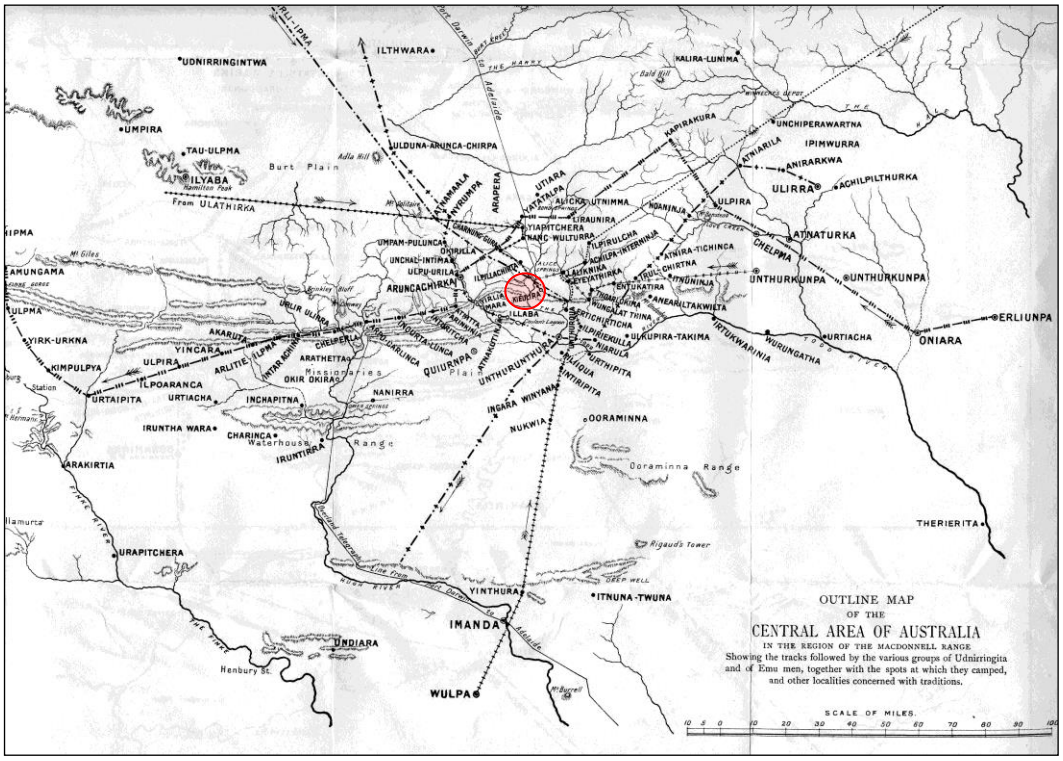


Figure 7.6. *Udnirringita* and Emu Dreaming track map centered on Alice Springs (red circle).
From Spencer and Gillen (1899): inside back cover.

Migration. As a major diachronic process of language group dispersal, migration tends to be gradual, but its large scale, cumulative implications reach back many millennia as diverse populations have moved into and out of Central Australia in conjunction with climatic and other changes (Sutton 1990). In the mid-20th century, migrations were related more to colonization than to climatic changes, but the historical processes may have been similar. For example, to what extent do Dreaming tracks such as those depicted in Figure 7.6 refer to historical migrations? I certainly do not know. But I do know that it is ethnocentric arrogance to dismiss them, to explain them away, as "nothing but mythology and primitive religion" simply because we still do not understand them.

Because of the continuous and perhaps unobtrusive nature of migrations in past centuries, assuming that the people of any language group or Country were permanently tied to any specific area of land or block of resources is theoretically questionable. Dreamings and sacred sites may have been tied to the land permanently, but the people migrated, albeit slowly, perhaps repeatedly and over many millennia, perhaps following Dreaming tracks such as those depicted in Figure 7.6. I did not witness migrations directly in 1971-72, but their consequences were ever present when I chose to see and hear them.

Table 7.4 shows that 184 Alyawarra lived at MacDonald Downs, Derry Downs and Ooratippra Stations, all of which were within traditional Alyawarra territory, but it does not mention Alyawarra population aggregates of similar size at Warrabri Settlement and Lake Nash Station, or in the region north and northeast of Elkedra Creek, all of which were at or beyond the margins of traditional Alyawarra territory. In other words, by 1971 a significant percentage of the (mostly northern) Alyawarra lived outside traditional Alyawarra territory, having migrated out of that territory since colonization began.

Likewise, Table 7.4 shows that 19 Aranda lived at MacDonald and Derry Downs, 121 at Utopia, and 111 at various stations from Alcoota to Bushy Park extending southwestwards from Utopia along the Sandover River. These Northern, Eastern and unspecified Aranda, totaling about 250, had migrated toward or into traditional Alyawarra territory. A major push factor was the intensive and pervasive social disruption that was occurring in and around Alice Springs; a major pull factor was the excellent reputation of the Chalmers family who operated MacDonald, Derry and Utopia Stations.

The Table says nothing about rates or routes of migration into or out of traditional Alyawarra territory. Since my research focused on the Alyawarra at MacDonald and Derry, I do not know how the out-migration of Alyawarra or the in-migration of Aranda might have affected relations between migrating people and topographic Countries.

It is at least interesting that Birdsell's and Tindale's exogamy rates, Bern's data on language group dispersal and mixing rates, and my data on mobility all suggest 10-15% mixing over a historical period in excess of 40 years.

I have not included an exhaustive coverage of all factors that contributed to mobility within and between camps, and some valuable additions to my list appear in O'Connell (1977:109-116).

8. Summary, Alternatives and Conclusions

Summary

Parts 3-7 demonstrate recurring features that define residential group compositions among the Alyawarra. I dealt not only with *patterns* of social organization as I saw them in 1971-72, but also with some of the historical *processes* that apparently generated those patterns, in some cases as early as the mid-19th century and much earlier. Although I did not structure my argument around cross-cultural comparisons, I noted certain features of Alyawarra residential group compositions that are found also among diverse societies at Konapandi, Hermannsberg,Yuendumu, Warrabri and Gurlanda; i.e., these societies with different forms of verbal behavior concerning section and subsection systems and kinship terminologies display similar forms of nonverbal behavior at least with regard to residential group compositions.

Strehlow (1947:35) negatively evaluates Aboriginal societies from a perspective of closure, rigidity and simplicity:

> "In all his mode of living and in all his multifarious occupations, there is everywhere evident the same depressing inertia, the same mental stagnation that has stifled so completely all his literary endeavors. … Central Australia sleeps heavily under the all-oppressive night-shadow of tradition."

Stanner (1965a:167) positively evaluates the same societies from a perspective of openness, flexibility and complexity:

> "The more one sees of Aboriginal life the stronger the impression that its mode, its ethos, and its principle are variations on a single theme - continuity, constancy, balance, symmetry, regularity, system, or some such quality as these words convey. … The result is a homeostasis, far-reaching and stable. … Equilibrium ennobled is 'abidingness'."

My position rejects Strehlow's evaluation and is much closer to Stanner's, where homeostasis and equilibrium suggest complex control mechanisms that maintain ever-shifting stability in organisms and ecosystems, analogous to the extraordinarily complex network of organs, tissues and cells that constitute the human immune system (Mitchell 2009:94-114; NobelPrize.org). A radically different analogy is offered by the intensive training in the *ragas* that Hindu classical musicians receive. It prepares them not to play the

ragas slavishly but rather to use them as highly flexible frameworks for improvisation within the stringent bounds of ancient traditions (Napier 2006). Thus I suggest using an analytical approach to Aboriginal Australia that assumes a high degree of openness, flexibility and complexity to better accommodate the variability that characterizes most aspects of Alyawarra society. By accepting that variability - that wide ranging diversity within uniformity - we allow it to realistically reflect the profound freedom that Aboriginal people use in coping with their challenging world. Their freedom is the direct opposite of Strehlow's (1947:35) "all-oppressive night-shadow of tradition", a description that is totally static.

Seeking to "measure" variability in major contextual dimensions, I presented numerical or quantitative data on topography, climate, history, kinship, architecture and settlement patterns.

Concerning kinship in particular, I examined a) Dreamings and Countries; b) descent and generation moieties, generation levels and generation intervals; c) sections, subsections and skin terms; and d) genealogies, kin types and kinship terminology.

With regard to household or residential group compositions *per se*, I examined variability among a) residential structures including ngundyas, alugeras and anoardegans; b) marital forms including monogamy, polygyny, the myth of gerontocracy, nuclear and extended families; and c) patrilocality and matrifocality.

Concerning the organization of camps, I a) paid special attention to diversity among inderlugas, muras and murelgwas, and b) examined corresponding theoretical concepts including local groups, hordes, bands, clusters, sub-clusters, estate, range, domain and regime.

Finally, I examined dynamic factors associated with a) deaths; b) permeable boundaries of language groups, and language group exogamy; and c) other dynamic factors including migration and language group mixing.

All of the topics that I discussed with regard to Australian Aboriginal residential group compositions displayed a great deal of openness, flexibility and complexity rather than closure, rigidity and simplicity. Thanks to Memmott for pointing out that the principle of 'openness' is well supported by findings from recent land claim research in the Alyawarra region and elsewhere, and for noting that my reference to 'highly flexible frameworks' is supported by unpublished land claim and Native Title evidence concerning alternate mechanisms of claiming rights and mounting succession to estates. In particular, he notes the

significance of the kurdungurla relation of ego to his MB's and MF's estate and the behavioral obligations that accompany it.

Alternatives to prescriptive marriage rules

In my efforts to understand Alyawarra residential group compositions, I have focused not on what people say they do, or on what they say they should do, but rather on what they actually do – how they behave in their daily lives. In fact they do talk about their own behavior and can explain their rules to each other, to recent initiates and to outside observers. But of course, like people everywhere, they do both more and less than what they say they do, and methods that work for the analysis of verbal behavior generally do not work for the analysis of nonverbal behavior.

I have not discovered or invented a single, simple term or sound bite with which to replace horde, estate, range, domain, regime and similar terms. Rather I see complexity in Alyawarra nonverbal behavior everywhere I look, and am content to focus on it without attempting to simplify it. Here I review multiple processes that may have generated it.

Within ego's same generation level in the same patrimoiety, all members of the multiple Country strands are biological ("proper"), close, distant or remote classificatory siblings (B, Z, MZD, FBD) of each other and marriages within that section almost never occur. Likewise adjacent generation marriages (between members of opposite generation moieties) almost never occur, while cross generation marriages (between different levels in the same generation moiety) are infrequent. Within ego's same generation level in the opposite patrimoiety, members of the multiple strands are biological, close, distant or remote classificatory cross-cousins (MBD, FZD), and marriages into that section are common.

Since male generations on average are 1.5 times longer than female generations, men of Gen.0 generally marry women of Gen.0, often marry women of Gen-2, and rarely marry women of Gen+2 or Gen±4. The 14.5 year W<H age difference means that there are three generations of women (M,D,DD) for every two generations of men (F,S), and the resulting asymmetry contributes greatly to irregularities in the social organization.

Men rarely marry women who belong to either their own descent moiety or the opposite generation moiety, and virtually never marry women who are proper or classificatory Z in violation of both of those moiety restrictions.

Alyawarra men generally marry Alyawarra women, often marry women of other Arandic language groups and language groups in other nearby nations, rarely marry women from coastal regions, and almost never marry non-Aboriginal women.

Alyawarra men generally marry women of the opposite descent moiety and same generation moiety regardless of their language group memberships. They marry women, necessarily in W's section, to whom they are related as 1st, 2nd, biological or classificatory cross-cousins, with MBD as the first choice, other matrilateral cross-cousins as the second choice, and FZD as third choice. Special constraints apply to sexual relations with ego's wife's proper mother (WM) who ordinarily is about the same age as ego but is in the wrong generation moiety.

In general these constraints do not prescribe bilateral 1st or 2nd cross-cousin marriage, but may be expressed that way in special cases. Although arranging a marriage of that type might be a cultural ideal, doing so may be difficult on a one-off basis and is impossible to sustain systematically through multiple generations. From this perspective, marriage rules are, with few exceptions, constitutive rather than regulative (Searle 1995, 2007), indicating which marriages are problematic without specifying precisely which marriages must occur.

Furthermore, mobility through space and time in Central Australia is driven by irregular climate rhythms and corresponding resource variability, language group exogamy, deaths, ceremonial schedules, gradual but cumulative migration, and other factors. It contributes to a great deal of population mixing locally among Countries, regionally among language groups and nations, and globally as attested by biology, languages, trade routes, oral traditions and continent-wide cultural commonalities.

So when we look carefully at residential group compositions based on kinship, marriage and descent relations in a murelgwa population of 83 adults who have been intermarrying in accordance with these very clear exclusionary patterns for many generations, we see – and should expect to see - extraordinary complexity. That complexity conforms unequivocally to Alyawarra principles but not at all to ethnocentric European assumptions about simplicity, rigidity and a multitude of related prejudices. Thus extracting meaningful or intelligible relationships among the people in this murelgwa as a whole or its constituent muras is more difficult than earlier writers indicated. That is true not because the society has lost its integrity but because the quest for simplistic, monocausal explanations is intrinsically defective, here as elsewhere.

Postmortem on the horde

To paraphrase the *Oxford English Dictionary* (Simpson and Weiner 1989), one of three current definitions of "horde" in the 19th century was: "a moving, amorphous swarm of savages, barbarians, wolves or insects". Apparently McLennan (1865) and Howitt and Fison (1883) - as cited by Hiatt (1996) – introduced the horde in this sense into discussions of Australian Aboriginal residential group compositions, thereby affirming the generally accepted stereotype of Australian Aboriginal societies as primitive, closed, rigid and simple, placing them far below the civilized, open, flexible and complex nature of European societies in what was left of the all-encompassing analogy of the Great Chain of Being (Lovejoy 1936). Brooks (1963:11), concerning similar attitudes toward poor whites in 19th century Mississippi, says: "This well-established stereotype was a gross oversimplification, … but like other oversimplifications, it has proved perennially attractive and has [long] been kept alive". Hofstadter and Sander (2013) recently argued that analogy is the "core of reasoning", but alas it is also the core of ethnocentrism and racism (Allport 1954) – consider Sagan's (1973:42-67) various "chauvinisms" in exobiology - and in early research with Aboriginal Australians it was a major obstacle to effective reasoning as we see also in Hiatt's (1996:36-56) "inquest on group marriage".

This interpretation is compatible with 20th century opposition to the empiricist or logical positivist view that "sensory data provides a completely objective basis for deciding between rival scientific theories" (Brewer and Lambert 1993). The naïve belief that observation provides a theory-neutral window on the world has been challenged by linguistic relativists (Sapir 1929; Whorf 1940), philosophers and historians of science (Hanson 1958, Kuhn 1962, Feyerabend 2010, Suppe 1977), cognitive psychologists (Brewer and Lambert 1993) and others. Even fictional detectives make the same point in different ways: e.g., Sherlock Holmes (Doyle 1917/2003:366) says, "[I]t is an error to argue in front of your data. You find yourself insensibly twisting them around to fit your theories", and Jack Webb (1951-59, a.k.a. Joe Friday of *Dragnet* fame) seeks "just the facts, ma'am". All of these people argue that observations are theory-laden rather than theory-neutral. Here that position is strengthened not by philosophical and theoretical arguments, but by a meticulous examination of the data themselves.

Subsequent to the fading of the Horde Controversy - and the concurrent Murngin Controversy (Barnes 1968) - in the mid-20th century, O'Connell (1977), Heppell (1979a) and Memmott (2007) ignored the horde. Binford (1984:180-181), writing perhaps hyperbolically, suggested that Radcliffe-Brown's ideas concerning the horde "appear … to be simply the projection of western ideas of territoriality … onto the world of Australian hunter-gatherers",

and cited other "bizarre example[s] of ascribing to the Australians one's own ideas of human nature."

Since observations are intrinsically entangled with theory, seeking "just the facts" may be a hopeless task. But understanding and modifying the theoretical components of "the facts" has led to revolutions in physical and biological sciences associated with names such as Copernicus, Newton, Einstein, Heisenberg, Lyell, Wegener, Darwin and so on. The names of McLennan, Howitt, Fison, Radcliffe-Brown, Birdsell and their followers do not appear in this list. I suggest that they accepted 19th century theoretical assumptions about closure, rigidity and simplicity with regard to "primitive societies", applied them to Australian Aboriginal social organization, then collected and collated misleading data that obscured what was going on in the field.

My own efforts here are subject to similar criticisms. Rather than seeking closure, rigidity and simplicity, I deliberately sought openness, flexibility and complexity. Not surprisingly I found a great deal of it. If Radcliffe-Brown et al. had sought it a century ago they too would have found it, but in fact, as products of their times, they did not. With better technologies and a radically altered orientation toward reductionism in the sciences, we can seek and find complexity where our predecessors sought and found simplicity, and we have more freedom to say "I don't know".

It is meaningless to ask whether focusing on complexity is correct, but it may be useful to ask whether it is productive to shift the theoretical baggage away from closure, rigidity and simplicity, toward openness, flexibility and complexity. The shift allows us to see the "data" differently, and to collect and collate it in ways that reveal different and perhaps more informative patterns in Australian Aboriginal societies. Perhaps more importantly, it permits us to see processes in Australian Aboriginal history that have been obscured by the commonly accepted notion that Aboriginal Australians, living in primitive societies - closed, rigid and simple - are a people without history. I suggest that 19th and 20th century efforts to impose consistency, symmetry, simplicity and closure on highly variable data damaged both anthropology and the people and societies of Aboriginal Australia.

Appendix 1. Online supplementary materials

Alyawarra numerical data used in preparing this paper is available online as follows:

2014 Denham, W.W. 2014a. *Alyawarra Ethnographic Archive, Version 2.* All data and results appear online at http://www.culturalsciences.info/AlyaWeb/index.htm. DATA includes a user manual and approximately 440,000 data items from the Alyawarra including texts, numerically coded data, photographs, maps, music, etc. RESULTS include all published and unpublished documents associated with my Alyawarra research. See: Introduction to the Alyawarra Ethnographic Data Base at http://ccr.sagepub.com/content/14/2/133.abstract .
Alyawarra Ethnographic Archive, Version 1. Hardcopy and restricted files at: Australian Institute of Aboriginal and Torres Strait Islander Studies, Canberra, ACT, Australia.

2014 Denham, W.W. 2014b. *Group Compositions in Band Societies (GCBS) Database*. Numerically coded vital statistics, genealogical, demographic and census datasets for 41 historical hunter-gatherer societies from 1776 to 1979.
GCBS Manual, Statistical Summary and all archived datasets online at http://www.culturalsciences.info/GCBS/index.htm.
To use datasets enhanced for online analysis, go to KinSources at https://www.kinsources.net/browser/fields.xhtml
Display the list of Coders.
Select Woodrow W. Denham to list all of the datasets I have contributed.
Select and use any of the datasets. Examples include:

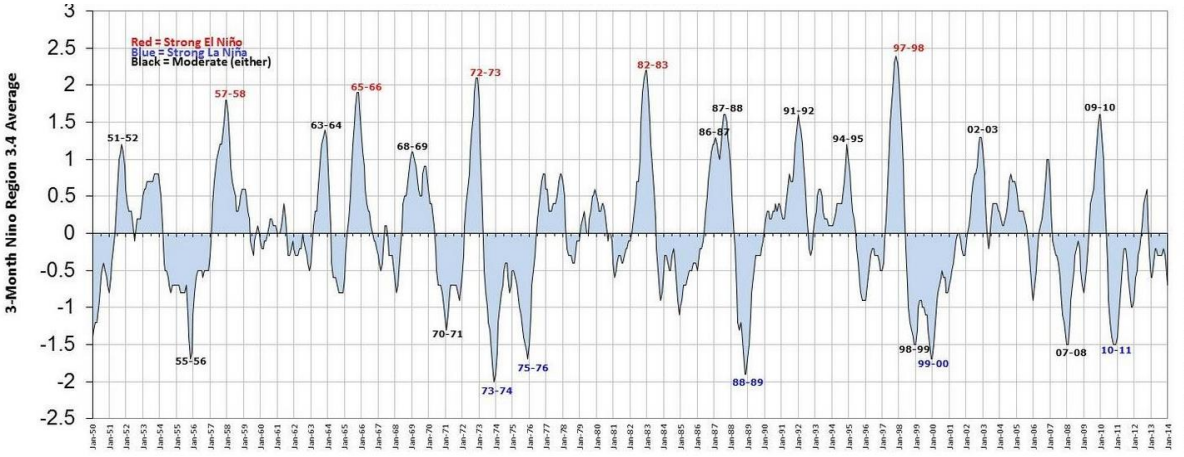
- Alyawarra 1971 AU01. Numerically coded vital statistics, genealogical, demographic and census dataset (n=377 cases) for the Alyawarra of Central Australia in 1971.
- Alyawarra 1971 AU01 Kinship Dataset. Used frequently in Artificial Intelligence (AI) research since 2004. The kinship dataset is a subset of the main AU01 dataset and is embedded in the AU01 dataset. The main objectives in using it have been to develop and test higher order pattern detection algorithms, but the research may yield new ways to analyze relations between kin and skin. Select Alyawarra 1971 AU01 and use all attachments (5/5) to that dataset. See also Alyawarra 1971 Kinship Dataset in MatLab format by C. Kemp, http://charleskemp.com/code/irm.html. At http://www.culturalsciences.info/AlyaWeb/public/dir/03ePst/WD2012_AI-biblio.pdf, see examples of AI research using Alyawarra kinship data.
- Alyawarra 1818-1979 AU10. Numerically coded vital statistics, genealogical, demographic and census datasets (n=1361 cases) for the Alyawarra of Central Australia spanning the period 1818-1979. Final editing in progress.

Appendix 2. Historical El Nino / La Nina episodes: 1950-present
(US-NOAA 2013 http://www.cpc.ncep.noaa.gov/products/analysis_monitoring/ensostuff/ensoyears.shtml)

Description: Warm (red) and cold (blue) episodes based on a threshold of +/- 0.5°C for the ***Oceanic Niño Index (ONI)*** [3 month running mean of ERSST.v3b SST anomalies in the Niño 3.4 region (5°N-5°S, 120°-170°W)], based on centered 30-year base periods updated every 5 years. For historical purposes cold and warm episodes (blue and red colored numbers) are defined when the threshold is met for a minimum of 5 consecutive over-lapping seasons.

Year	DJF	JFM	FMA	MAM	AMJ	MJJ	JJA	JAS	ASO	SON	OND	NDJ
1950	-1.4	-1.3	-1.2	-1.2	-1.1	-0.9	-0.6	-0.5	-0.4	-0.5	-0.6	-0.7
1951	-0.8	-0.6	-0.4	-0.2	0.0	0.4	0.6	1.0	1.1	1.2	1.1	0.9
1952	0.6	0.4	0.3	0.3	0.3	0.1	-0.1	0.0	0.2	0.2	0.2	0.3
1953	0.5	0.6	0.6	0.7	0.7	0.7	0.7	0.7	0.8	0.8	0.8	0.8
1954	0.7	0.5	0.1	-0.4	-0.5	-0.5	-0.6	-0.7	-0.8	-0.7	-0.7	-0.7
1955	-0.7	-0.7	-0.7	-0.8	-0.8	-0.8	-0.8	-0.7	-1.1	-1.4	-1.7	-1.6
1956	-1.1	-0.8	-0.6	-0.5	-0.5	-0.5	-0.5	-0.6	-0.5	-0.5	-0.5	-0.5
1957	-0.3	0.1	0.4	0.7	0.9	1.0	1.1	1.2	1.2	1.3	1.5	1.8
1958	1.8	1.6	1.2	0.9	0.7	0.6	0.5	0.3	0.3	0.4	0.5	0.6
1959	0.6	0.6	0.5	0.3	0.2	-0.1	-0.2	-0.3	-0.1	0.0	0.1	0.0
1960	-0.1	-0.2	-0.2	-0.1	-0.1	0.0	0.1	0.2	0.2	0.1	0.1	0.1
1961	0.0	0.0	0.0	0.1	0.3	0.4	0.2	-0.1	-0.3	-0.3	-0.2	-0.1
1962	-0.2	-0.3	-0.3	-0.3	-0.2	-0.2	0.0	-0.1	-0.2	-0.3	-0.4	-0.5
1963	-0.4	-0.2	0.1	0.3	0.3	0.5	0.8	1.1	1.2	1.3	1.4	1.3
1964	1.1	0.6	0.1	-0.4	-0.6	-0.6	-0.6	-0.7	-0.8	-0.8	-0.8	-0.8
1965	-0.6	-0.3	0.0	0.2	0.5	0.8	1.2	1.5	1.7	1.9	1.9	1.7
1966	1.4	1.1	0.9	0.6	0.4	0.3	0.3	0.1	0.0	-0.1	-0.1	-0.2
1967	-0.3	-0.4	-0.5	-0.4	-0.2	0.1	0.1	-0.1	-0.3	-0.3	-0.3	-0.4
1968	-0.6	-0.8	-0.7	-0.5	-0.2	0.1	0.4	0.5	0.5	0.6	0.8	1.0
1969	1.1	1.1	1.0	0.9	0.8	0.6	0.5	0.5	0.8	0.9	0.9	0.8
1970	0.6	0.4	0.4	0.3	0.1	-0.2	-0.5	-0.7	-0.7	-0.7	-0.8	-1.0
1971	-1.2	-1.3	-1.1	-0.8	-0.7	-0.7	-0.7	-0.7	-0.7	-0.8	-0.9	-0.8
1972	-0.6	-0.3	0.1	0.4	0.6	0.8	1.1	1.4	1.6	1.9	2.1	2.1
1973	1.8	1.2	0.6	-0.1	-0.5	-0.8	-1.0	-1.2	-1.3	-1.6	-1.9	-2.0
1974	-1.9	-1.6	-1.2	-1.0	-0.8	-0.7	-0.5	-0.4	-0.4	-0.6	-0.8	-0.7
1975	-0.5	-0.5	-0.6	-0.7	-0.8	-1.0	-1.1	-1.2	-1.4	-1.5	-1.6	-1.7
1976	-1.5	-1.1	-0.7	-0.5	-0.3	-0.1	0.2	0.4	0.6	0.7	0.8	0.8
1977	0.6	0.6	0.3	0.3	0.3	0.4	0.4	0.4	0.5	0.7	0.8	0.8
1978	0.7	0.5	0.1	-0.2	-0.3	-0.3	-0.3	-0.4	-0.4	-0.3	-0.1	-0.1
1979	-0.1	0.1	0.2	0.3	0.2	0.0	0.0	0.2	0.3	0.5	0.5	0.6
1980	0.5	0.4	0.3	0.3	0.4	0.4	0.3	0.1	-0.1	0.0	0.0	-0.1
1981	-0.4	-0.6	-0.5	-0.4	-0.3	-0.3	-0.4	-0.4	-0.3	-0.2	-0.2	-0.1
1982	-0.1	0.0	0.1	0.3	0.5	0.7	0.7	1.0	1.5	1.9	2.1	2.2
1983	2.2	1.9	1.5	1.2	0.9	0.6	0.2	-0.2	-0.5	-0.8	-0.9	-0.8
1984	-0.5	-0.3	-0.3	-0.4	-0.5	-0.5	-0.3	-0.2	-0.3	-0.6	-0.9	-1.1
1985	-1.0	-0.9	-0.7	-0.7	-0.7	-0.6	-0.5	-0.5	-0.5	-0.4	-0.4	-0.4
1986	-0.5	-0.4	-0.2	-0.2	-0.1	0.0	0.3	0.5	0.7	0.9	1.1	1.2
1987	1.2	1.3	1.2	1.1	1.0	1.2	1.4	1.6	1.6	1.5	1.3	1.1
1988	0.8	0.5	0.1	-0.2	-0.8	-1.2	-1.3	-1.2	-1.3	-1.6	-1.9	-1.9
1989	-1.7	-1.5	-1.1	-0.8	-0.6	-0.4	-0.3	-0.3	-0.3	-0.3	-0.2	-0.1
1990	0.1	0.2	0.3	0.3	0.2	0.2	0.3	0.3	0.4	0.3	0.4	0.4

Year	DJF	JFM	FMA	MAM	AMJ	MJJ	JJA	JAS	ASO	SON	OND	NDJ
1991	0.3	0.2	0.2	0.3	0.5	0.7	0.8	0.7	0.7	0.8	1.2	1.4
1992	1.6	1.5	1.4	1.2	1.0	0.7	0.3	0.0	-0.2	-0.3	-0.2	0.0
1993	0.2	0.3	0.5	0.6	0.6	0.5	0.3	0.2	0.2	0.2	0.1	0.1
1994	0.1	0.1	0.2	0.3	0.4	0.4	0.4	0.4	0.5	0.7	1.0	1.2
1995	1.0	0.8	0.6	0.3	0.2	0.0	-0.2	-0.4	-0.7	-0.8	-0.9	-0.9
1996	-0.9	-0.8	-0.6	-0.4	-0.3	-0.2	-0.2	-0.3	-0.3	-0.3	-0.4	-0.5
1997	-0.5	-0.4	-0.1	0.2	0.7	1.2	1.5	1.8	2.1	2.3	2.4	2.3
1998	2.2	1.8	1.4	0.9	0.4	-0.2	-0.7	-1.0	-1.2	-1.3	-1.4	-1.5
1999	-1.5	-1.3	-1.0	-0.9	-0.9	-1.0	-1.0	-1.1	-1.1	-1.3	-1.5	-1.7
2000	-1.7	-1.5	-1.2	-0.9	-0.8	-0.7	-0.6	-0.5	-0.6	-0.6	-0.8	-0.8
2001	-0.7	-0.6	-0.5	-0.4	-0.2	-0.1	0.0	0.0	-0.1	-0.2	-0.3	-0.3
2002	-0.2	0.0	0.1	0.3	0.5	0.7	0.8	0.8	0.9	1.2	1.3	1.3
2003	1.1	0.8	0.4	0.0	-0.2	-0.1	0.2	0.4	0.4	0.4	0.4	0.3
2004	0.3	0.2	0.1	0.1	0.2	0.3	0.5	0.7	0.8	0.7	0.7	0.7
2005	0.6	0.4	0.3	0.3	0.3	0.3	0.2	0.1	0.0	-0.2	-0.5	-0.8
2006	-0.9	-0.7	-0.5	-0.3	0.0	0.1	0.2	0.3	0.5	0.8	1.0	1.0
2007	0.7	0.3	-0.1	-0.2	-0.3	-0.3	-0.4	-0.6	-0.8	-1.1	-1.2	-1.4
2008	-1.5	-1.5	-1.2	-0.9	-0.7	-0.5	-0.3	-0.2	-0.1	-0.2	-0.5	-0.7
2009	-0.8	-0.7	-0.5	-0.2	0.2	0.4	0.5	0.6	0.8	1.1	1.4	1.6
2010	1.6	1.3	1.0	0.6	0.1	-0.4	-0.9	-1.2	-1.4	-1.5	-1.5	-1.5
2011	-1.4	-1.2	-0.9	-0.6	-0.3	-0.2	-0.2	-0.4	-0.6	-0.8	-1.0	-1.0
2012	-0.9	-0.6	-0.5	-0.3	-0.2	0.0	0.1	0.4	0.5	0.6	0.2	-0.3
2013	-0.6	-0.6	-0.4	-0.2	-0.2	-0.2						



El Niño			La Niña		
Weak	Mod	Strong	Weak	Mod	Strong
1952	1951	1957	1950	1955	1973
1953	1963	1965	1954	1970	1975
1958	1968	1972	1956	1998	1988
1969	1986	1982	1964	2007	1999
1976	1987	1997	1967		2010
1977	1991		1971		
2004	1994		1974		
2006	2002		1983		
	2009		1984		
			1995		
			2000		
			2005		
			2008		
			2011		

Two lower graphics from http://ggweather.com/enso/oni.htm

Appendix 3. Alyawarra and Aranda kinship reference terms.

Implicit Alyawarra Subsection	Alyawarra term #	Alyawarra term	Gloss	Aranda term
A1	10	awaadya	EB	kullia
	11	anguriya	EZ	ungaraitcha
	12	adiadya	YB/YZ	itia , witia
	1	arengiya	FF/FFZ SS/SD + BSS/BSD *	arunga
C1	2	anyainya	MM/MMB MMBSS/MMBSD ZDS/ZDD + DS/DD *	ipmunna
	3	aidmeniya	MMBSS/MMBSD ZDS/ZDD + DS/DD *	
A2	6	agngiya	F	oknia
	7	aweniya	FZ FMZD	uwinna winchinga
	16	aleriya	S/D + BS/BD *	allira
C2	19	muriya	MMBD/MMBS WM/WMB ZDH/ZDHZ +	mura
	23	aneriya	BWM/DHZ *	-none-
D2	13	angeliya	FZS/MBS	unkulla
	15	adniadya	MBS	
	14	algyeliya	FZD/MBD	ilchella
	5	adardiya	MF/MFZ DS/DD BDS/BDD *	chimmia
B2	18	anowadya	W/MMBDD + H/MFZDS *	anua
	21	amburniya	WB/ZH	umbirna
	22	andungiya	HZ/BW *	intinga
	4	aburliya	FM/FMB FMBSD/FMBSS ZSS/ZSD + SS/SD *	apulla
D1	8	amaidya (mia)	M SW +	mia
	9	abmarlia	MB SWB *	gammona
B1	17	umbaidya	S/D * ZS/ZD + FMBS/FMBD	umba
		-none-	WF +	irundera
		-none-	HF *	nimmera

Key: * female speaking; + male speaking
Sources. Alyawarra data: Denham, McDaniel, Atkins 1979; Aranda data: Spencer and Gillen 1899.

Appendix 4. Alyawarra Vocabulary

This table briefly summarizes some of the terms used frequently in this paper. Column 1 lists several categories of English language terms. Column 2 lists the equivalent Alyawarra or Alyawarra-English terms that I used, emphasizing my own hearing and semi-phonetic spelling of those terms. Column 3 lists the spelling of corresponding terms used in Green's (1992) *Alyawarr to English Dictionary* (see pronunciation guide, spelling rules 1992:xii-xvi).

Similarities between my terms and Green's are much closer than I expected them to be, especially in the kinship terms section at the end of the table. But there are exceptions. If Green (1992) did not include an entry for one of my English terms such as "mature man", I inserted a question mark (?) in column 3 to indicate that my English language term and my own Aboriginal equivalent are not represented in the dictionary. If Green included an entry for one of my English language terms such as "old man", but did not include a cognate term that seemed to correspond to the Aboriginal term that I regularly heard in use at MacDonald Downs, I inserted Green's alternate term in column 3, followed by a question mark (?).

English terms	Denham's Alyawarra or Alyawarra-English terms	Green's (1992) Alyawarr terms
Dreaming	. Dreaming	. Aknganenty (through father) . Altyerr (through mother)
Country . own . manage	. Country . own . boss, kurtungurlu	. amer . apmerew-areny . kwertengerl
Man . Young initiated man . Mature man . Old man	. ardwa . ardwa andidja . ardwa elgwa . ardwa ayua	. artwa . artwa akely? . ? . artwa ampwa?
Sections or skins	. Kamara . Pityara . Burla . Ngwariya	. akemarr . apetyarr . apwerl . ngwarrey
Community types . Minimal dispersed community . Small, dispersed community . Large, aggregated community	 . inderluga (anoardegan) . mura . murelgwa	 . ? . amer . amer + ilkwa (=big)
Residence types . Family residence . Single men's residence . Single women's residence	 . anoardegan . ngundya . alugera	 . apmerangk? . arnkenty . arlweker, amperr
Residence components . Residence as a whole . Shade . Shelter . Sleeping depression . Windbreak . Cooking fire, warming fire . Roasting pit	 . mura . urlya . waga . abmura . dagwa . uryungwada . umbarla	 . amer . ? . wak . ? . rtakw . ? . ?

English terms	Denham's Alyawarra or Alyawarra-English terms	Green's (1992) Alyawarra terms
Kinship terms		
. FF/ FFZ	1 arengiya	. arrengey
. MM/MMB	2 anyainya	. anyany
. ♀DS/DD, ♂ZDS/ZDD	3 aidmeniya	. aypmenhey
. FM/FMB	4 aburliya	. aperley
. MF/MFZ	5 adardiya	. artartety
. F/FB	6. agngiya	. akngey
. FZ/ FMZD	7 aweniya	. awenhey
. M/MZ	8 amaidya, mia	. amaty, amey
. MB	9 abmarlia	. apmarley
. EB	10 awaadya	. awayaty
. EZ	11 anguriya	. angkweraty
. YB, YZ	12 adiadya	. ayteyaty
. FZS/MBS	13 angeliya	. ankelaty
. FZD/MBD	14 algyeliya	. altyelaty
. MBS	15 adniadya	. ?
. ♂S/D, ♀BS/BD	16 aleriya	. aleraty
. ♀S/D, ♂ZS/ZD	17 umbaidya	. ampaty
. ♂W/MMBDD, ♀H/MFZDS	18 anowadya	. anewaty
. MMBD/MMBS, ♂WM/WMB	19 muriya	. mweraty
. ♂WB/ZH	21 amburnia	. mpwerney
. ♀HZ/BW	22 andungiya	. arntengaty
. ♀BWM/DHZ	23 aneriya	. ?
. myself	24 aiyenga	. ayenh

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